

# KV-C2160B/C2161B KV-C2560B/C2960B

## RM-816

## SERVICE MANUAL



### *French Model*

KV-C2160B  
Chassis No. SCC-F08K-A  
KV-C2560B  
Chassis No. SCC-F08F-A  
KV-C2960B  
Chassis No. SCC-F08E-A

### *Switzerland Model*

KV-C2161B  
Chassis No. SCC-E99G-A

## AE-1C CHASSIS

MODELS OF THE SAME SERIES	
KV-C2160B/C2161B	KV-X2550B/X2950B
KV-C2560B/C2960B	
KV-C2550B/C2950B	

[KV-C2160B, KV-C2161B, KV-C2560B, KV-C2960B]

### SPECIFICATIONS

Television system B/G/H, L, I  
Color system PAL, SECAM, NTSC3.58, NTSC4.43  
Stereo system GERMAN stereo  
Channel coverage B/G/H  
VHF: E2-E12 UHF: E21-E69  
CABLE TV (1) : S1-S41  
CABLE TV (2) : S01-S05, M1-M10, U1-U10  
L  
VHF: F02-F-10 UHF: F21-F69  
CABLE TV : B-Q  
I  
VHF: A-I UHF: B21-B69

Picture tube HI-Black Trinitron tube  
(KV-C2160B/C2161B)  
Approx. 54.5 cm (21 inches)  
(Approx. 51 cm picture measured diagonally)  
100° degree deflection  
(KV-C2560B)  
Approx. 63.5 cm (25 inches)  
(Approx. 59 cm picture measured diagonally)  
110° degree deflection  
(KV-C2960B)  
Approx. 72.4 cm (29 inches)  
(Approx. 68 cm picture measured diagonally)  
110° degree deflection

-Continued on next page-



# TRINITRON® COLOR TV

# SONY®

# Inputs / Outputs Terminals

## REAR

- 21 pin Euro connector (CENELEC standard)
  - Inputs for audio and video signals
  - Inputs for RGB
  - Outputs of TV video and audio signals
- 2/21-pin Euro connector
  - Inputs for audio and video signals
  - Inputs for S-video
  - Outputs for video and audio signals (selectable)
- Audio output(variable) -phono jacks

## FRONT

- Video input phono jack
- Audio inputs (L,R) phono jacks
- S-video Inputs 4pin DIN
- Headphone jack : stereo mini jack

Sound output 15 W + 15 W  
 Power consumption 87 Wh (KV-C2160B/C2161B)  
 101 Wh (KV-C2560B)  
 108 Wh (KV-C2960B)

## Dimensions

Approx. 645×433×495 mm (w/h/d) (KV-C2160B/C2161B)  
 Approx. 720×497×480 mm (w/h/d) (KV-C2560B)  
 Approx. 814×558×508 mm (w/h/d) (KV-C2960B)  
 Approx. 25kg (KV-C2160B/C2161B)  
 Approx. 38kg (KV-C2560B)  
 Approx. 52kg (KV-C2960B)  
 RM-816 Remote Commander (1)  
 IEC designation R6 batteries (2)

## Weight

## Supplied accessories

### [RM-816]

#### Remote control system

infrared control

#### Power requirements

3V dc  
 2 batteries IEC designation R6 (size AA)  
 Approx. 75×221×23mm(w/h/d)  
 Approx. 230g (including batters)  
 IEC designation R6 batteries (2)

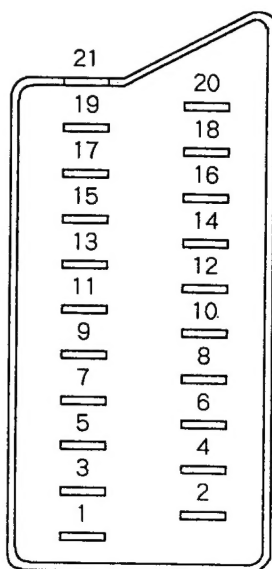
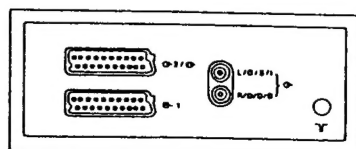
## Dimensions

## Weight

## Accessories supplied

Design and specifications are subject to change without notice.

21 pin connector (1 2)



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
2	○	○	○	Audio input B (right)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
3	○	○	○	Audio output A (left)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
7	○	●	●	Blue input	0.7 ± 3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 - 12V) : Part mode Low state (0 - 2V) : TV mode Input impedance : More than 10kohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7V ± 3dB, 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	-	-	Red input	0.7V ± 3dB, 75ohms, positive
	-	○	○	(S signal) chroma input	0.3V ± 3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 - 3V) Low state (0 - 0.4V) Input impedance : 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive Sync : 0.3V (-3, +
	○	-	-	Video input	1V ± 3dB, 75ohms, positive Sync : 0.3V (-3, +
20	-	○	○	Video Input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync : 0.3V (-3, + 10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● unconnected (open) \* at 20Hz - 20kHz

4 Pin connector (2)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync 0.3V -3 +10 dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

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**CAUTION**

**SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.**


**ATTENTION**

**APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.**

**SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

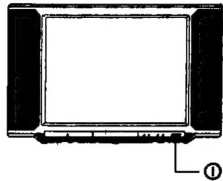
**ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.**

## SECTION 1 GENERAL

### 1-1. SWITCHING ON/OFF

After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240V AC, 50Hz).

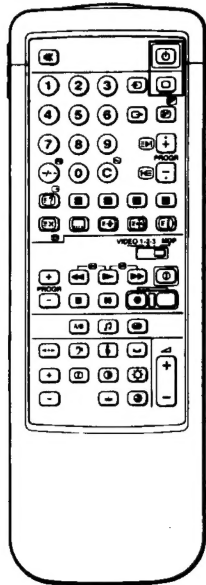


#### How to turn the TV on

Action	Result
Press ① on the TV.	The TV will turn on. <b>Note:</b> If the screen remains blank, the TV may be in the standby mode. Press ① or any number button on the commander to switch it on.

#### How to turn the TV off

<b>A Temporarily</b>	
Press ② to enter standby mode.	The TV will be in standby. To return to the TV mode press ①
<b>B Completely</b>	
Press ③ on the TV.	The TV will turn off.



### 1-2. PRESETTING

After you have installed this TV you need to preset TV channels.

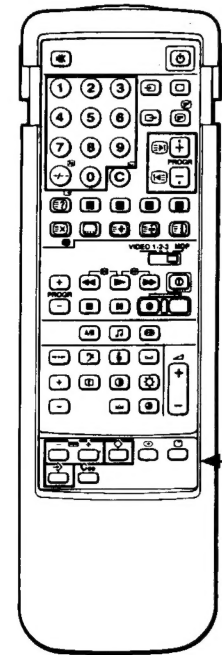
TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on this TV before you can watch the TV programmes.

There are 60 spaces for storing these channels.

Slide open the full function side of the remote commander to reveal preset buttons.

#### How to preset channels automatically

If you are unfamiliar with the channel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset T.V. channels directly".

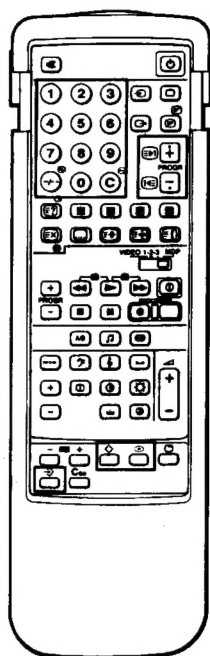


**Note:** These buttons should be used in preset mode only.

Action	Result
<b>1</b> Press → to enter the preset mode.	The programme number will start flashing.
<b>2</b> Press PROG + or - or the number buttons to select the programme number to which you want to preset channels.	The programme number changes.
<b>3</b> Press ④ + or - once to search forward or backward for channels.	When a channel is tuned in, the search will stop. <b>Note:</b> If you want to skip a channel, press ④ + or ④ -.
<b>4</b> Press ⑤ if you want to store the channel which is tuned in. Press → to exit preset mode without storing.	The channel is now stored and you have returned to TV mode.
<b>5</b> Repeat steps 1 to 4 to store the other channels.	



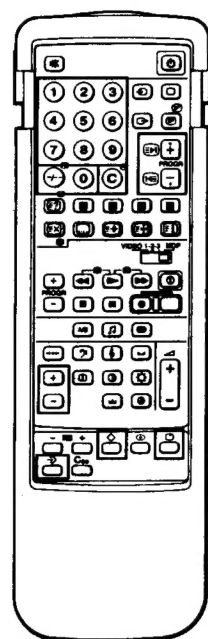
## How to preset channels directly



Action	Result
<b>1</b> Press → to enter the preset mode. 	The programme number will start flashing.
<b>2</b> Press PROGR +/- or the number buttons to select the programme number on which you want to preset a channel. 1 2 3 4 5 6 7 8 9 0 <b>Note</b> To select a double-digit number, use the +/- button. For example, if you want to choose 23, press +/-, 2, and then 3.	The programme number changes.
<b>3</b> Press C. If you want to select a cable channel, press C twice. 	The indication "C--" ("S--" for a cable channel) starts flashing on the display.
<b>4</b> Select the channel number with two digits (e.g. 04) by pressing the number buttons. 1 2 3 4 5 6 7 8 9 0 <b>Note</b> Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	The channel number changes. <b>Note</b> If you have made a mistake the letter "X" will appear. Repeat step 4 again.
<b>5</b> Press ◇ to store the channel which is tuned in. Press → to exit the preset mode without storing. 	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 5 to store the other channels.	

## How to Name a Station

You can use up to five characters to "name" a channel or station (i.e. BBC1).



Action	Result
<b>1</b> Select a programme number you want to name by pressing the PROGR +/- or the number buttons 1 2 3 4 5 6 7 8 9 0	The selected programme number will appear.
<b>2</b> Press →. 	The programme number starts flashing.
<b>3</b> Press □. 	The first column of the station name indication will start flashing.
<b>4</b> Press + or - to select a letter in the alphabet, a number, or a blank space. 	The letters of the alphabet, numbers and the space (" ") will appear sequentially.
<b>5</b> Press □. 	The first character is now set and the second column will start flashing.
<b>6</b> Repeat steps 4 and 5 to set each letter.	
<b>7</b> Press ◇. 	The channel name is now stored and you have returned to TV mode.

## How to tune in a channel temporarily


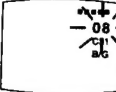

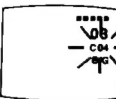

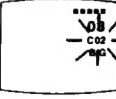

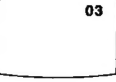
You can tune a channel in temporarily, if it has not been preset.

Action	Result
<b>1</b> Press C. For cable channels, press C twice.	The indication "C" ("S" for cable channels) appears on the screen.
<b>2</b> Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4.)	The channel is received, but it is not stored to any programme number.

## 1-3. BASIC TV OPERATION

### How to Skip Programmes

Using the PROGR +/- buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
<b>1</b> Press $\rightarrow$ to enter the preset mode. 	 The programme number will start flashing.
<b>2</b> Select the programme number that you want to skip by pressing PROGR +/- or the number buttons. 	 The programme number changes.
<b>3</b> Press Coo. 	 The lowest channel number appears under the programme number.
<b>4</b> Press $\diamond$ . 	 The channel is now stored and you have returned to TV mode.

Repeat steps 1 to 4 to skip other programme numbers.

### How to Fine Tune Manually

If the picture is distorted, you can fine tune the channel manually.

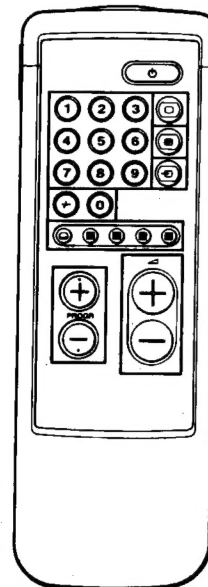
Action	Result
Press $\leftarrow$ + or - repeatedly until the picture looks normal.	The indication $\leftarrow F \rightarrow$ appears on the screen.
Press $\rightarrow$ to enter the preset mode.	The programme number starts flashing.
Press $\diamond$ .	The fine tuning is stored.

**Note:** The automatic fine tuning will function again when you preset the channel once more.

**Note:** Press  $\downarrow$  on door to open.



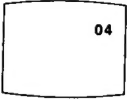
P  $\rightarrow$   $\Delta$   $\rightarrow$   $\rightarrow$   $\rightarrow$




This section introduces you to the basic control functions which are available on the simple side of the remote commander.

### How to Select Programmes

Before you can select programmes make sure that you have preset channels.

Action	Result
Press PROGR +/- or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The selected programme is displayed.

### How to Adjust the Volume

Action	Result
Press $\Delta$ + or -.	 The volume markers will appear.

### How to Use Additional Functions

#### How to operate with the buttons on the TV

You can also select programmes and adjust the volume using the P  $\rightarrow$   $\Delta$   $\rightarrow$   $\rightarrow$   $\rightarrow$  +/- buttons on the front of the TV.

For operation, first press the P  $\rightarrow$   $\Delta$   $\rightarrow$   $\rightarrow$   $\rightarrow$  button repeatedly so that the P (for programme) or  $\Delta$  (for volume) indication appears on the screen, and then adjust with the  $\rightarrow$   $\leftarrow$  +/- buttons.

#### How to view the teletext

Press  $\square$ . To return to the TV mode, press  $\square$ . For details about the teletext operation.

#### How to view the video input picture

Press  $\square$ . To return to the TV mode, press  $\square$ . For further details.

## 1-4. ADVANCED TV OPERATION

This section shows you how to use convenient features and how to adjust the picture and sound to your taste. Use the full-function side of the Remote Commander.

### How to use on-screen display and special sound features












You can enjoy the following convenient features.

How to	Action	To resume normal picture/sound
Display on-screen indications	Press	Indications disappear after some seconds
Display programme numbers	Press  twice	Press  twice again.
Mute the sound	Press	Press  again.
Select a language in bilingual programmes.	Press A/B. The selected mode of the A--B indicator on the TV lights up.	Press A/B.
Set the sound to music listening position	Press	Press  again.
Use the space sound (special acoustic effect)	Press	Press  again.
Request the time	Press	Press  again.

### How to adjust the picture and sound

Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps.

#### For picture adjustment

To Adjust:	Press:	Then:	Result: (+ ↔ -)
Picture:			
Colour Intensity		 	More ↔ Less
Picture Contrast			More ↔ Less
Brightness			Bright ↔ Dark
Hue (for NTSC only)			Reddish ↔ Greenish
			Sharp ↔ Soft
Sound:			
Bass		 	More ↔ Less
Treble			More ↔ Less
Balance			More Right/More Left

To reset the picture and sound to factory set levels press .

#### On the set:

Press +/- buttons simultaneously.

### How to select a NICAM broadcast

This Sony TV has been designed to select Nicam broadcasts when available. Whenever a Nicam broadcast is received, the symbol appears briefly on the screen. When the Nicam programme ends, or you switch channels to one without Nicam, the symbol appears. To check if the channel you are watching is receiving Nicam, press the on screen display button , on the full function side of the remote commander.

### How to select the sound of your choice

Nicam programmes can be broadcast in three ways. You may select the sound you want to hear in each of these, by pressing the button on the full function side of the remote commander.

Nicam service being broadcast	Action	The sound you hear	Indication on the TV A--B
Stereo		Stereo	
	Press A/B	Normal	
	Press A/B again to return to stereo		
Mono		Mono	
	Press A/B	Normal	
	Press A/B again to return to Nicam mono.		
Bilingual*		Language A	
	Press A/B	Language B	
	Press A/B	Normally broadcast language	
	Press A/B again to return to language A		

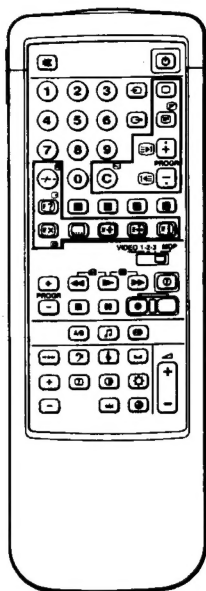
\* Depending on availability of service.





## 1-5. TELETEXT OPERATION (KV-C2161B only)

TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.

With the simple side of the Remote Commander, only the basic operation is possible.

### How to View the Teletext


















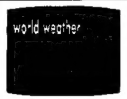










Action	Result
<b>1</b> Select the channel which carries the teletext service you wish to see.	The channel changes on the screen.
<b>2</b> Press  .	 Teletext will appear. If the teletext signal is not broadcast, then <b>p100</b> is displayed.
<b>3</b> Input three digits for the page number using the number buttons. <b>Note</b> If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
<b>To return to the TV mode.</b> Press  .  <b>To change the teletext channels</b> First press  to return to the TV mode, then repeat steps 1 to 3.	

#### Note

If the signal of the TV channel is weak, teletext errors may often occur.

### How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press  .	 The index page appears.
Request the subtitle page (p888).	Press  .	The subtitle page is displayed (p888).
Access the next or preceding page.	Press  (PAGE +) or  (PAGE -).	 The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press  once if you are in text mode, or press  twice if in TV mode.  To return to the normal teletext display press  again.	 The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press  (HOLD).  To resume normal teletext reception, press  (TEXT/MIX).	 The HOLD symbol (  ) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press  once to enlarge the upper half. Press twice to enlarge the lower half.  Press again to restore the normal display.	 The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press  (REVEAL).  Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	1. Request a new page.	The numbers are entered.
	2. Press  (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press  to view this page.	The requested page is displayed.
Have a requested page displayed at a pre-determined time.	1. Request a desired page.	The requested page is displayed.
	2. Press  (TP ON).	"T*****" appears at the bottom of the screen.
	3. Enter the time you want to have the page displayed with four digits using the number buttons. (For example, enter 0730 for 7:30 AM.)	The time is entered on the screen.
	4. Press  (TEXT CL) to watch the TV programme until the requested time.  <b>To cancel the request</b> Display the teletext page, then press  (TP OFF).	At the requested time, the page number will be displayed at the top of the screen, to view this page, press  .  The request is cancelled. To resume TV mode press  .

Some of the features may not be available depending on the Teletext service.

## 1-6. OPTIONAL CONNECTIONS/OPERATIONS

### How to use the FASTEXT Feature

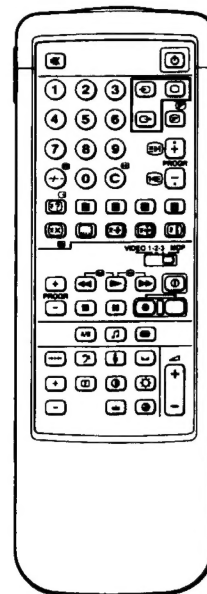
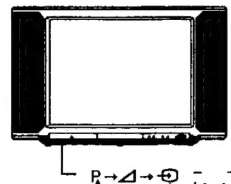
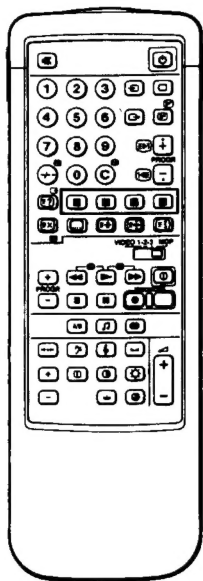
FASTEXT feature allows you to access pages quickly with one key operation. When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the coloured buttons on either side of your Remote Commander.

#### Operation

Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

#### Note

Correct FASTEXT operation depends on the necessary signals sent from the TV station.



### How to view the video input picture

You can view the picture of video equipment connected to the input terminals by selecting the input mode.

#### Operation

Action	Result
Press  repeatedly to select the desired input.	1 Symbol for the selected input appears. (See the table below.)
To return to the TV mode, press the  button.	

#### Input modes

Symbol	Result
	Audio/video input through the  connector.
	RGB input through the  connector.
	Audio/video input through the  2/- connector.
	S video input (from a VTR equipped with an S video output) through the  2/- connector.
	Audio/video input through  and  jacks on the front.
You can also select the input mode using the    button on the TV. In this case, first select  and then press +/- buttons to select the input.	

### How to select the Output

The 2/- connector outputs four kinds of audio/video signals. You have to select one of them as follows.

#### Operation

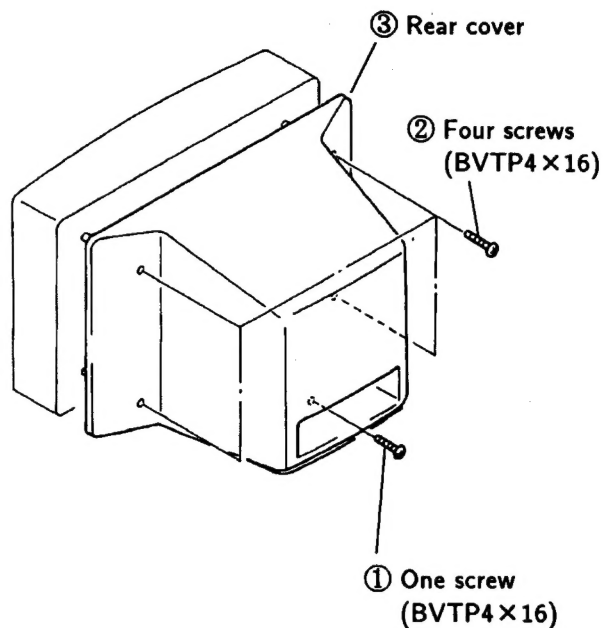
Action	Result
Press  repeatedly to select the desired input.	1 Symbol for the selected output appears. (See the table below.)

#### Output modes

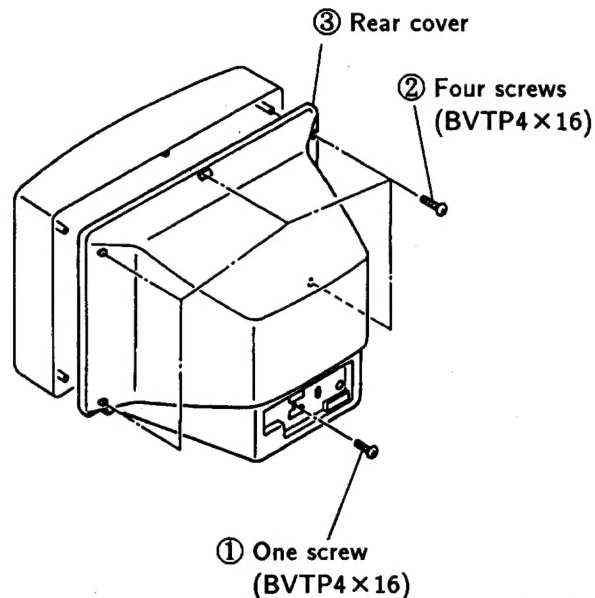
Symbol	Output from
1	The audio/video signal from the  1 connector
2	The audio/video signal from the  2/- connector
3	The audio/video signal from the   connectors.
TV	The audio/video signal from the  aerial terminal.

## SECTION 2 DISASSEMBLY

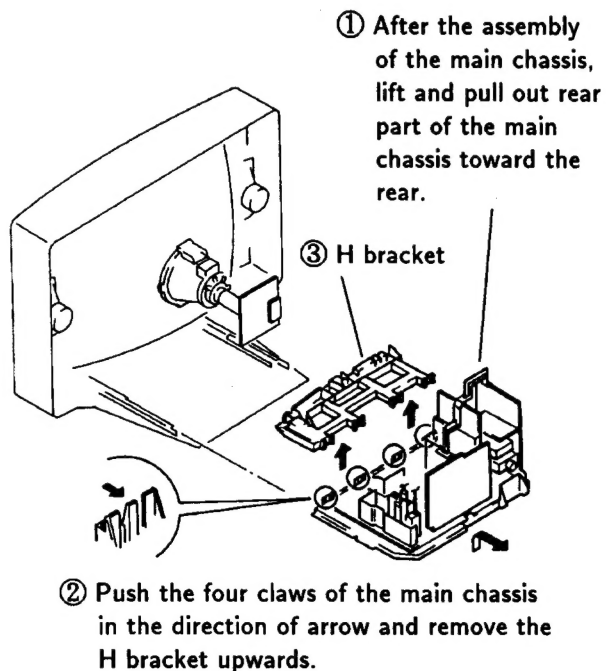
### 2-1-1. REAR COVER REMOVAL (21 inch)



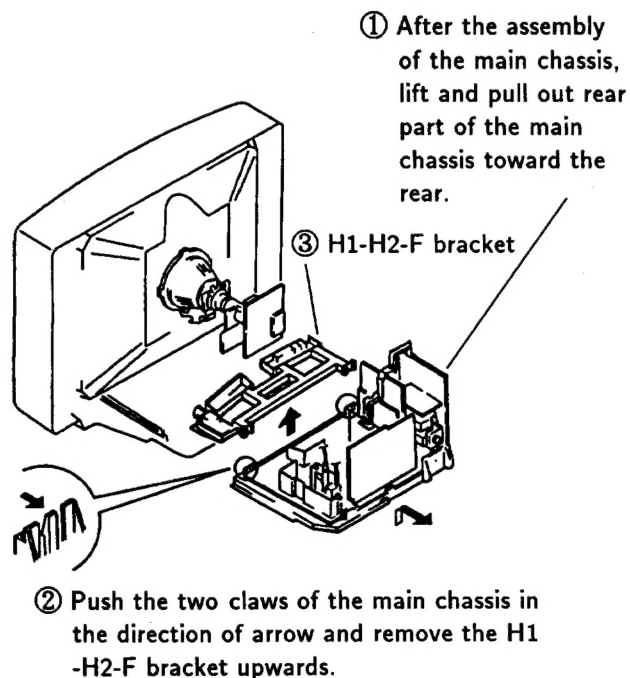
### 2-1-2. REAR COVER REMOVAL (25inch, 29inch)



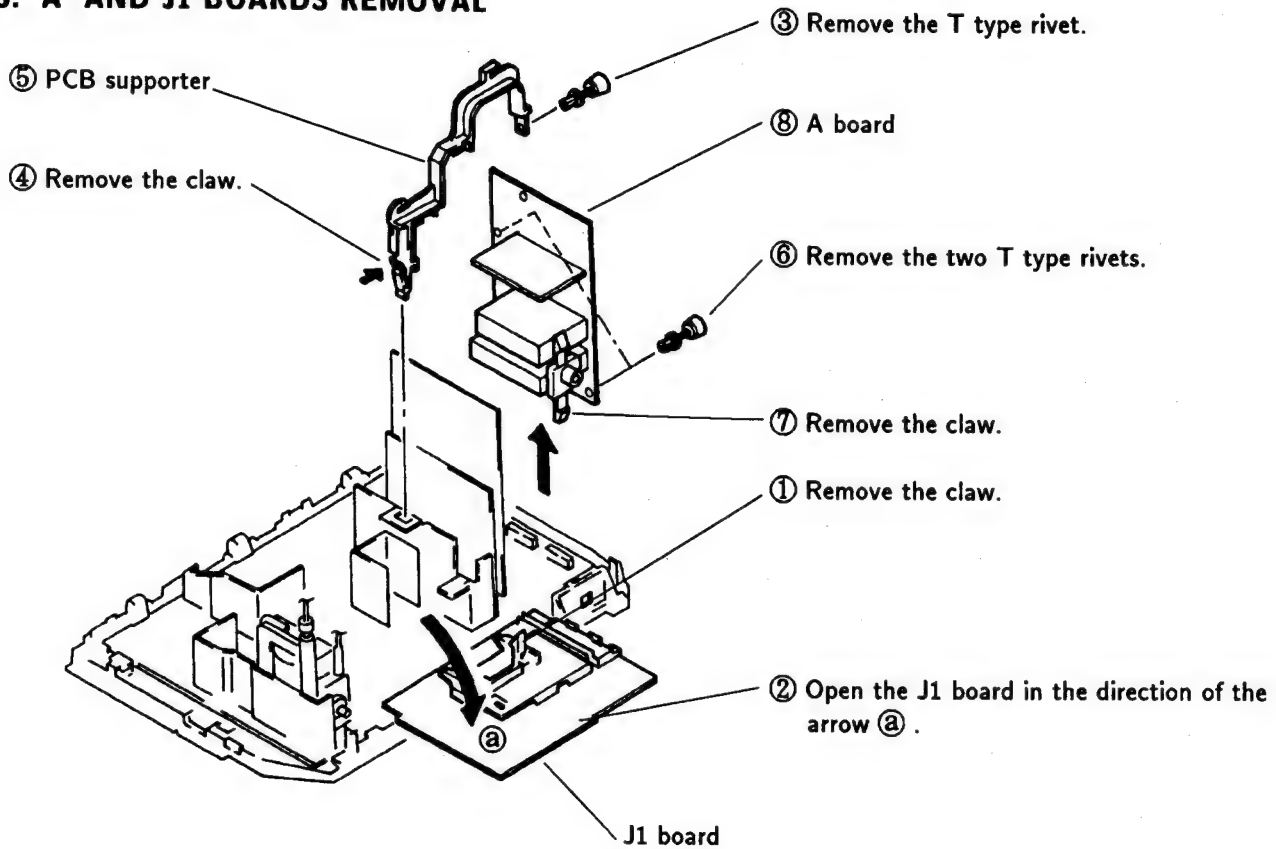
### 2-2-1. CHASSIS ASSEMBLY REMOVAL (21inch)



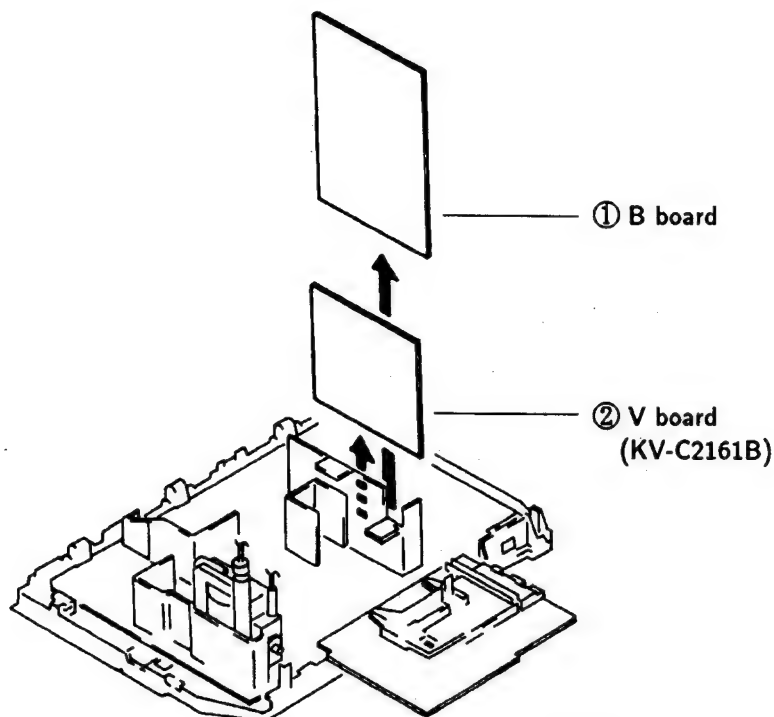
### 2-2-2. CHASSIS ASSEMBLY REMOVAL (25inch, 29inch)



## 2-3. A AND J1 BOARDS REMOVAL



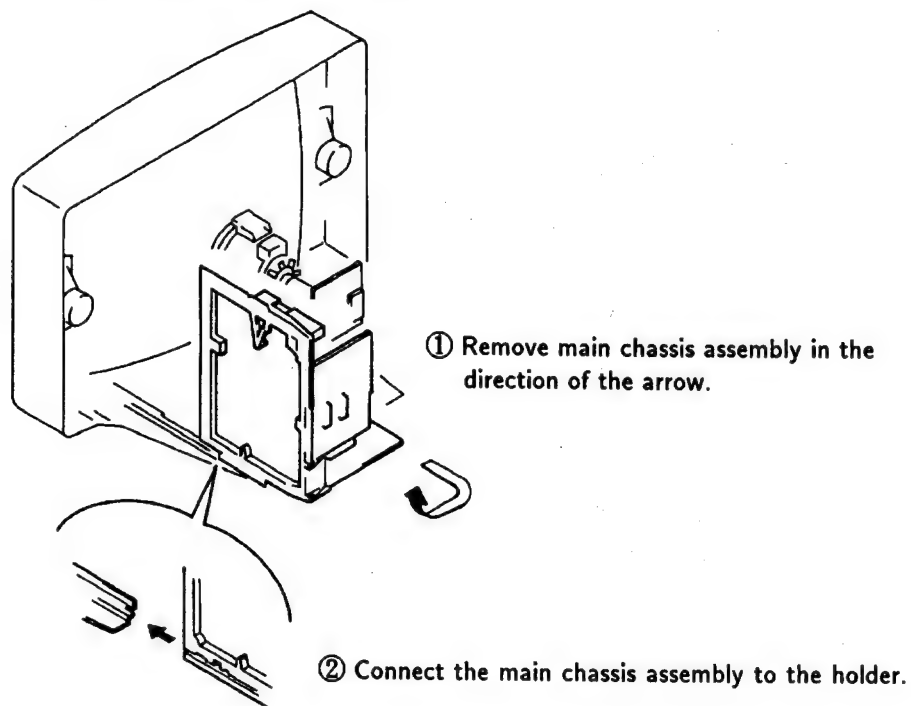
## 2-4. B AND V BOARDS REMOVAL



Note: 10 pin extension cable (S-0945-001-0)

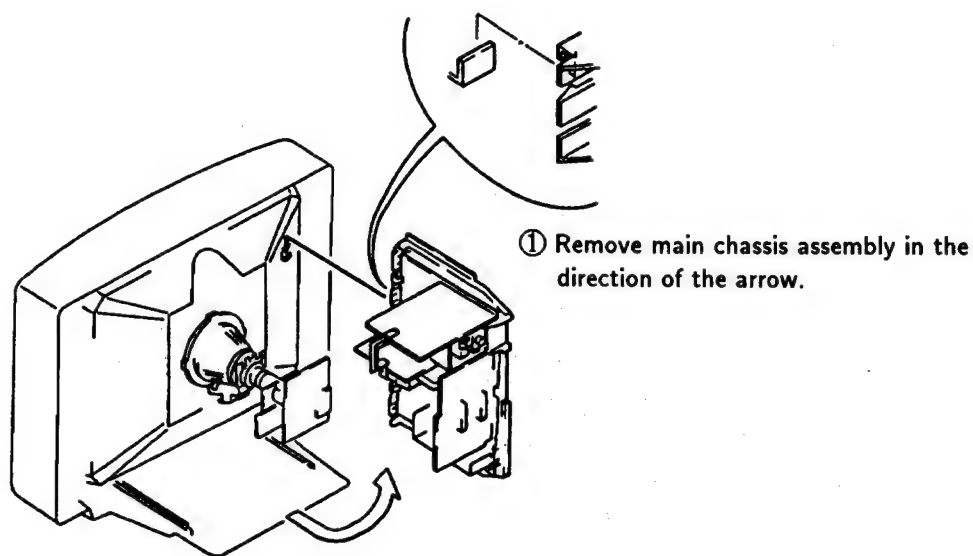
### 2-5-1. SERVICE POSITION (21inch)

- \* Remove the bracket from the main chassis assembly and then perform the following servicing.  
(Refer to 2-2-1. CHASSIS ASSEMBLY REMOVAL.)

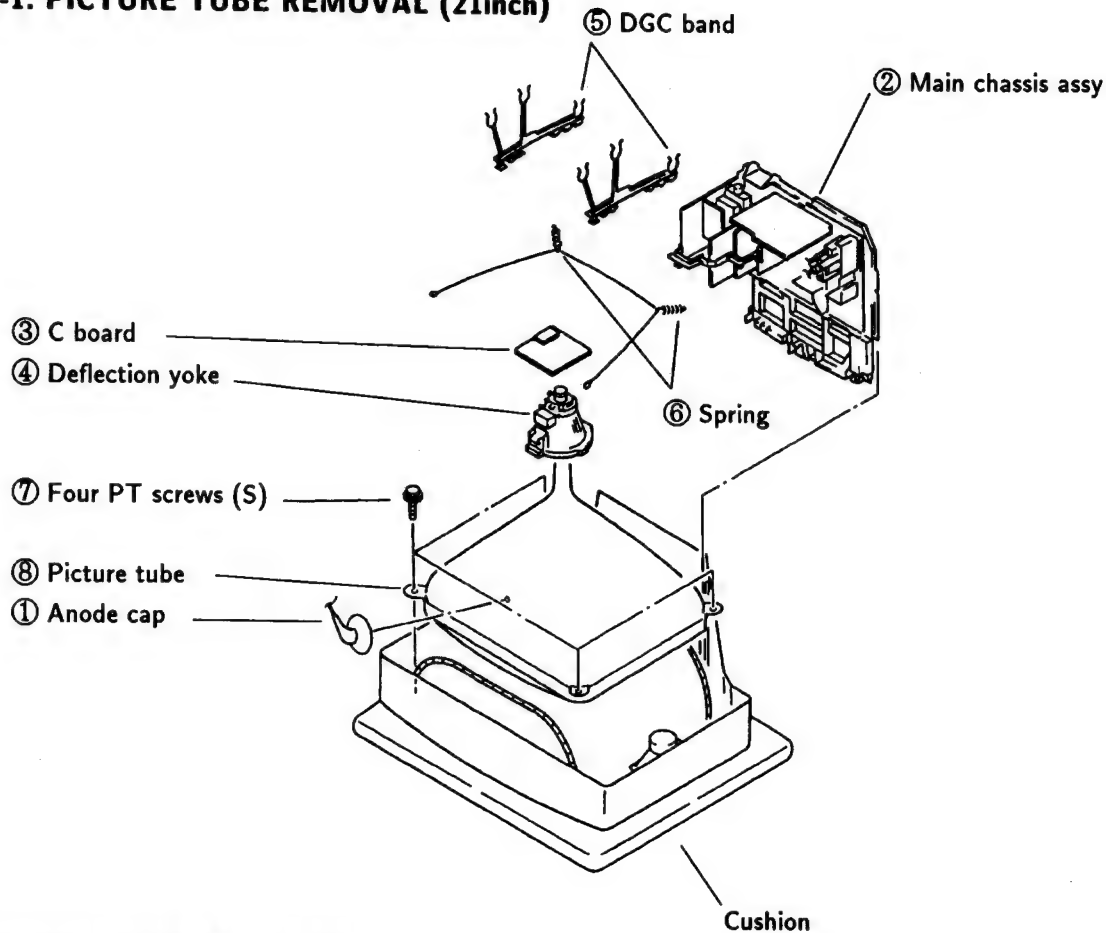


### 2-5-2. SERVICE POSITION (25inch, 29inch)

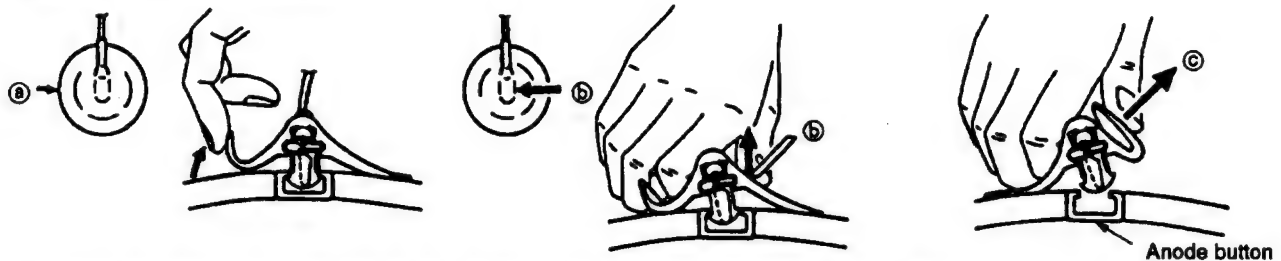
- \* Remove the connector bracket from the main chassis assembly and then perform the following servicing.  
(Refer to 2-2-2. CHASSIS ASSEMBLY REMOVAL.)



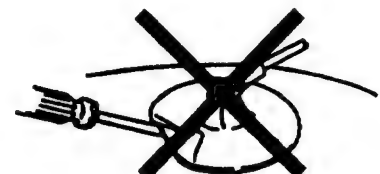
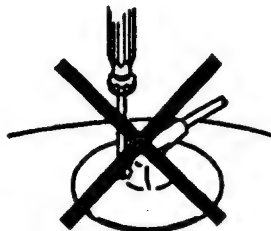


**2-6-1. PICTURE TUBE REMOVAL (21inch)****• REMOVAL OF ANODE-CAP**

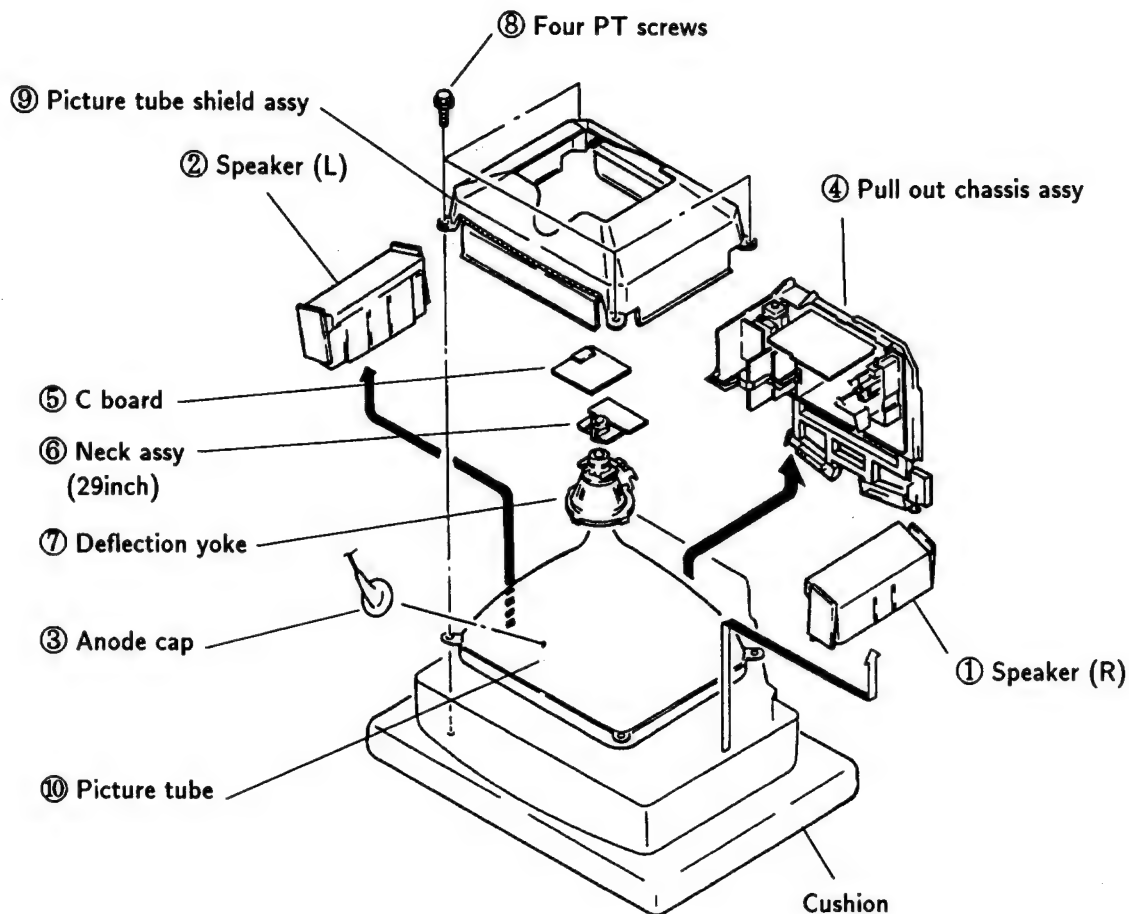
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

**• REMOVING PROCEDURES****• HOW TO HANDLE AN ANODE-CAP**

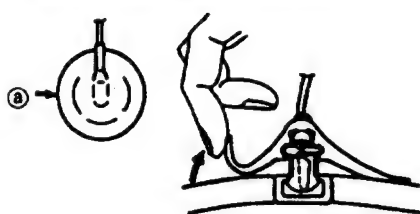
- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



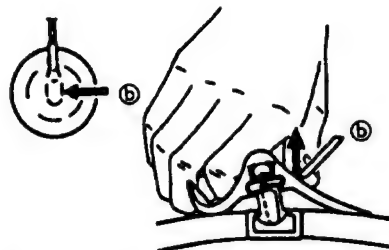
## 2-6-2. PICTURE TUBE REMOVAL (25inch, 29inch)



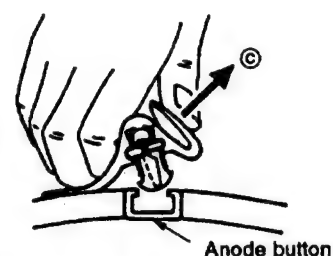
### • REMOVAL OF ANODE-CAP • REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ①.



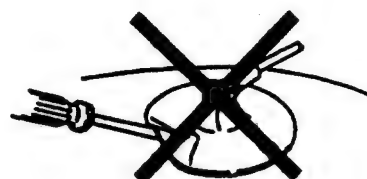
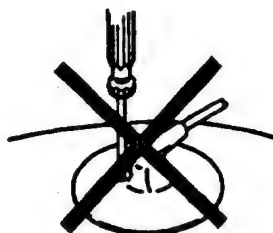
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②.



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ③.

### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



## SECTION 3

### SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted. The controls and switch below should be set as follows unless otherwise noted :

● CONTRAST control..... 80%(or Normal by commander)

☆ BRIGHTNESS control..... 50%

Perform the adjustments in order as follows:

#### Preparation: (21 inch, 25 inch)

- Set the side of the unit with the PICTURE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser..

#### 3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.
 

CONTRAST      }  
 BRIGHTNESS    } normal
2. Turn the raster signal of the pattern generator to red.
3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly. (Fig.3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)
5. Switch over the raster signal to blue and blue and confirm the condition.
6. When the position of the deflection yoke is determined, tighten it with a deflection yoke mounting screw.
7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

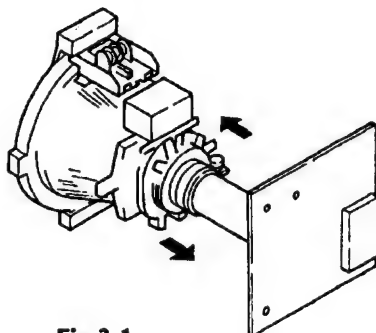


Fig.3-1

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

**Note:** Test Equipment Required:

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

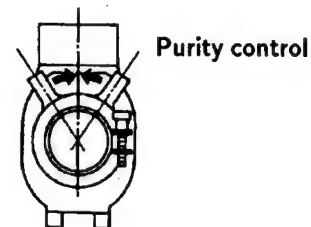


Fig.3-2

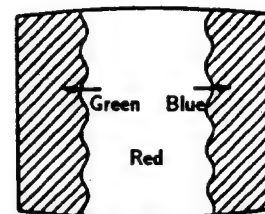


Fig.3-3

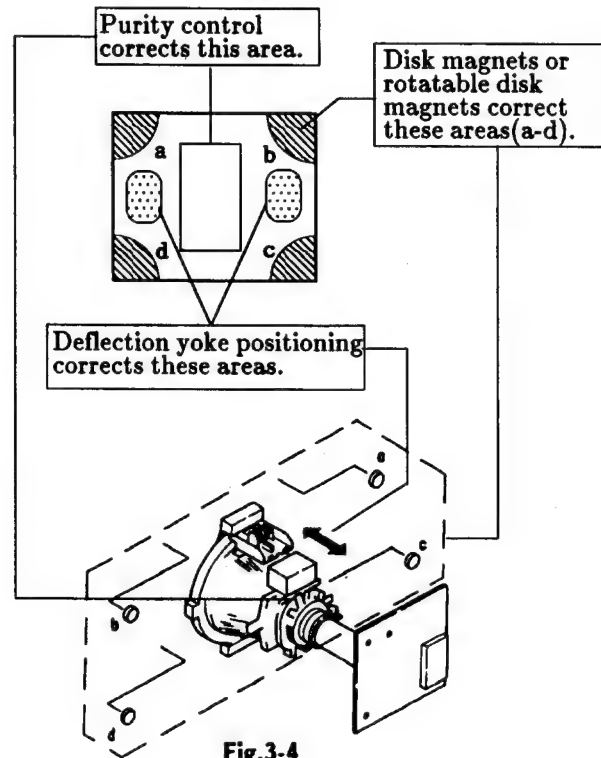


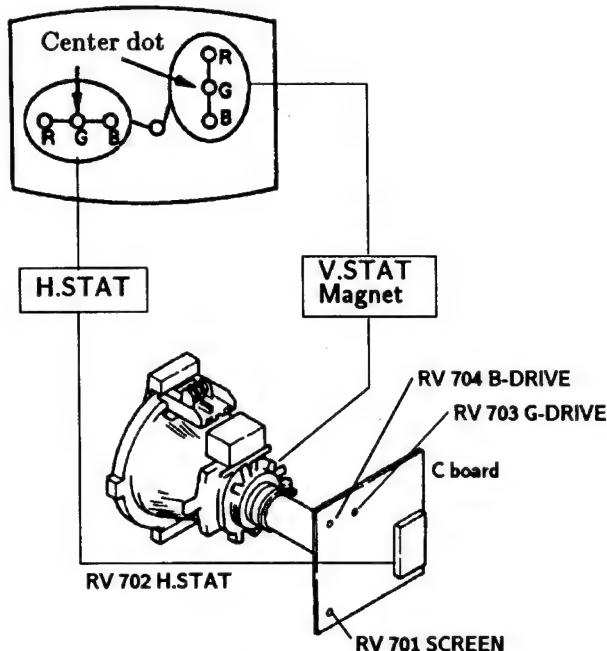
Fig.3-4

### 3-2. CONVERGENCE

#### Preparation:

- Before starting, perform FOCUS, H.SIZE, and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

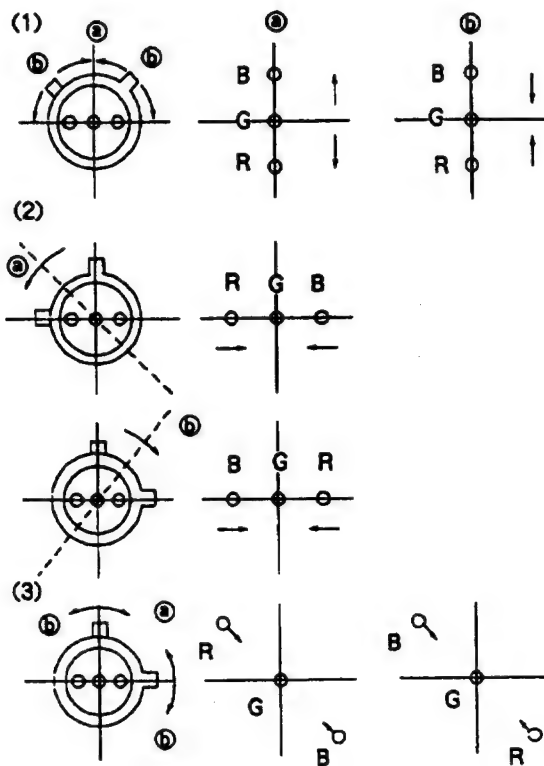
#### (1) Horizontal and Vertical Static Convergence



1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)
- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow (a) and (b), red, green and blue dots move as shown below.



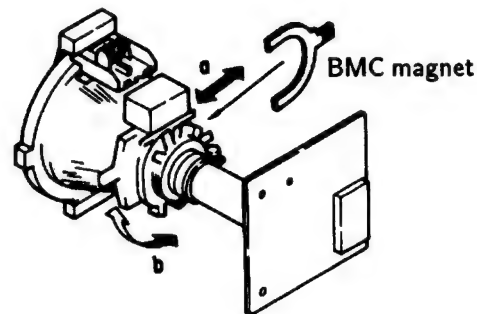
(KV-21 inch only)

If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

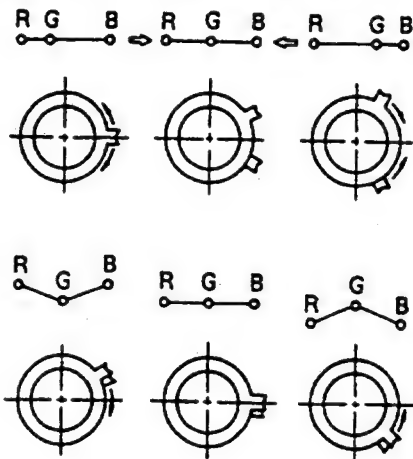
Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

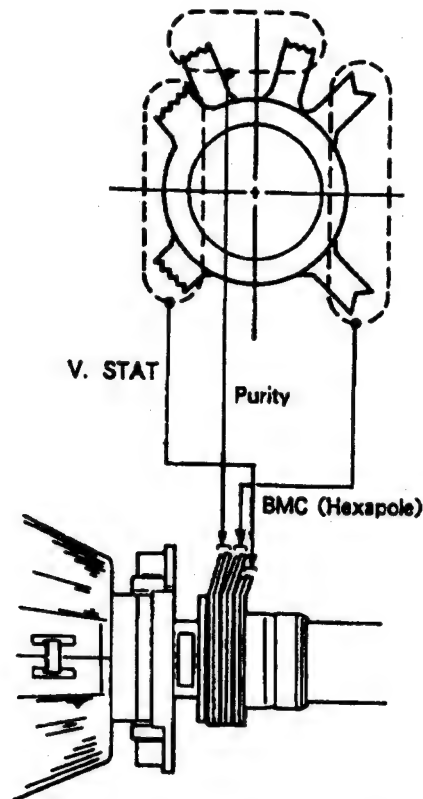


(KV-25 inch only)

- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking. Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

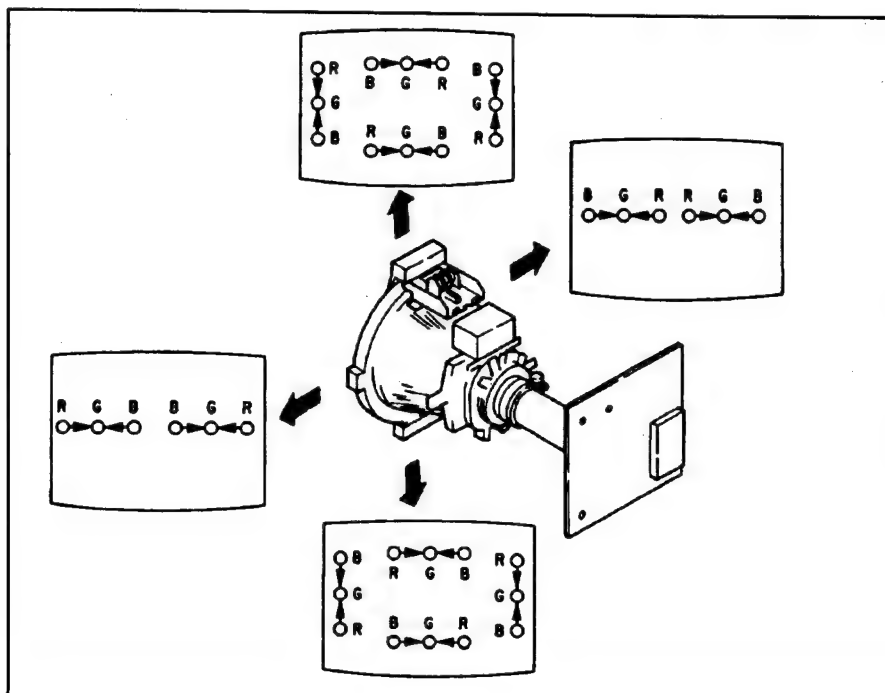
**(2) Dynamic Convergence Adjustment****Preparation:**

● Before starting perform Horizontal and Vertical static convergence Adjustment.

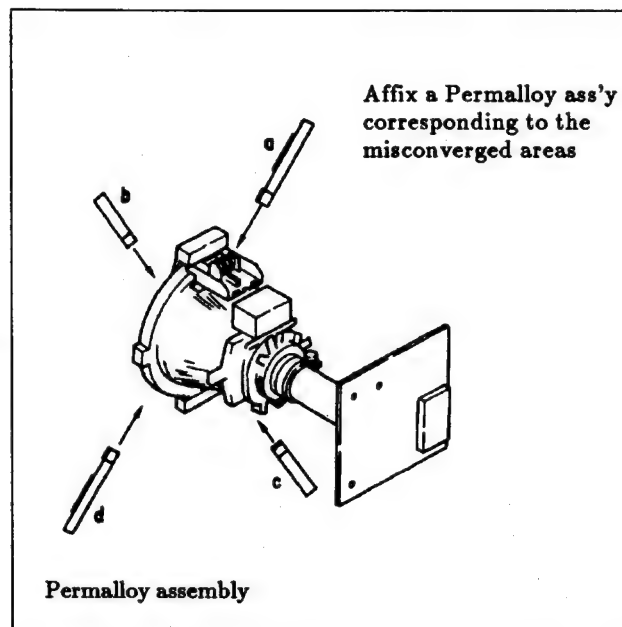
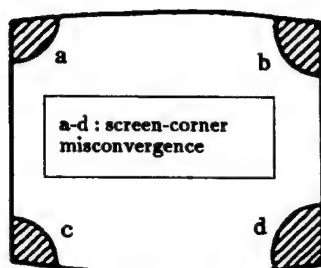
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.

3. Move the deflection yoke for best convergence as shown below.

4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

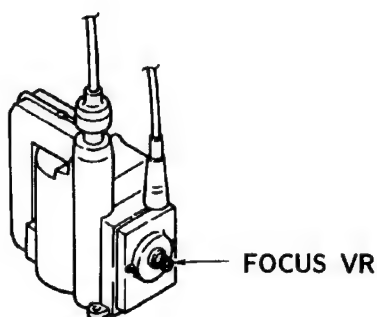


### (3) Screen-corner Convergence

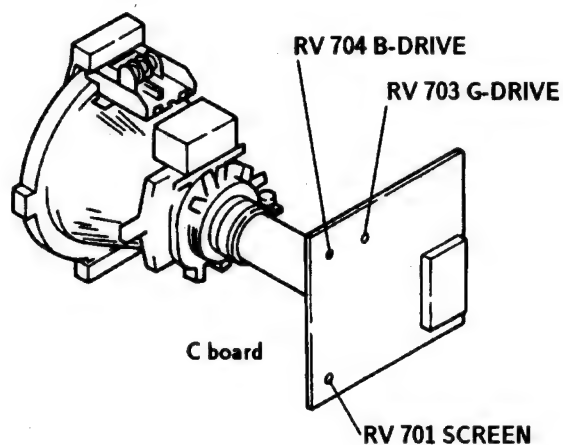


### 3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.



### 3-4. SCREEN (G 2) and WHITE BALANCE



#### Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power source.
4. While watching the picture, adjust the G 2 volume (RV701) immediately before fly-back line disappears.

#### **White Balance Adjustment**

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

### Preparations: (29 inch)

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

### 3-5. BEAM LANDING

1. Input the white signal with the pattern generator.  
Contrast } normal  
Brightness }
2. Position neck ass'y as shown in Fig 3-6.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.  
(See Figures 3-5 through 3-7.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Figure 3-5.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.  
(See Figure 3-8.)

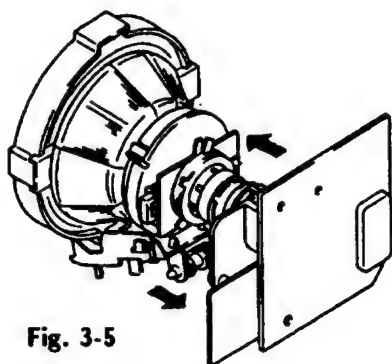


Fig. 3-5

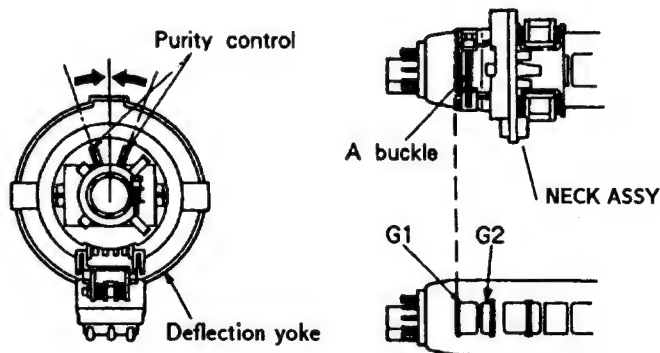


Fig. 3-6

Fig. 3-7

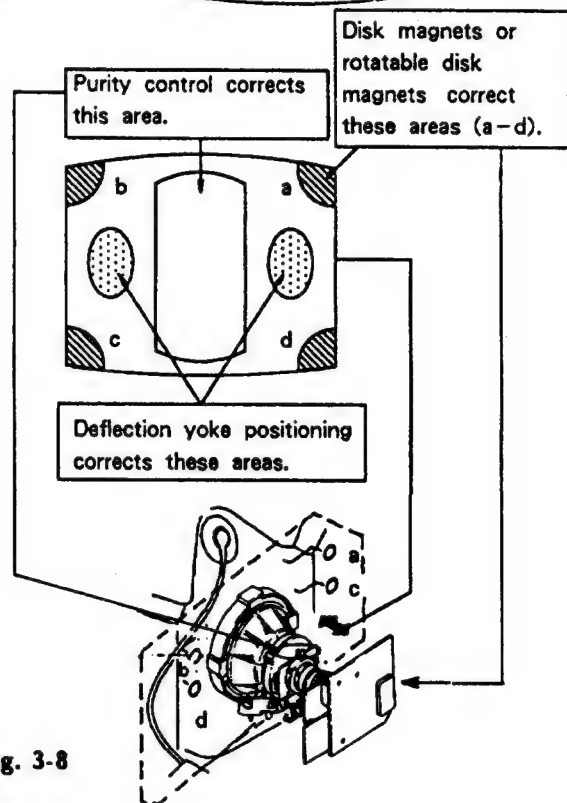
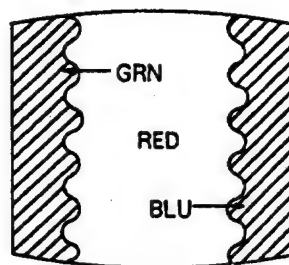


Fig. 3-8

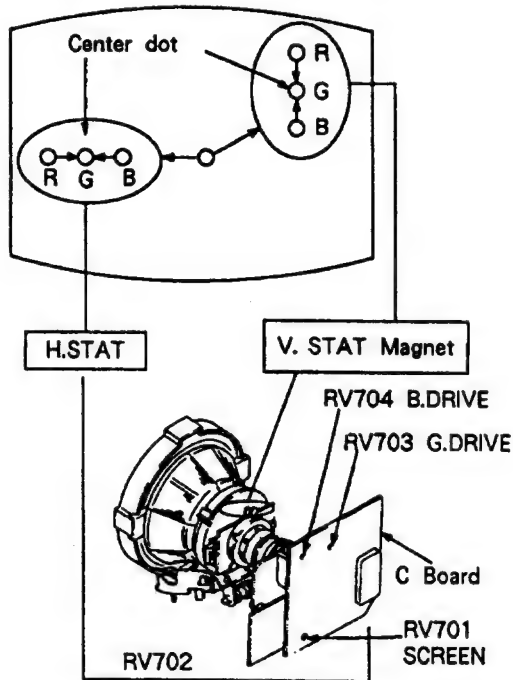


### 3-6. CONVERGENCE

#### Preparations :

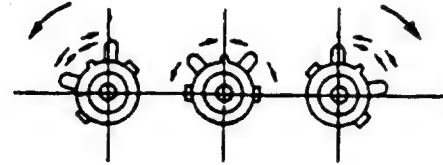
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

#### (1) Horizontal and vertical static convergence

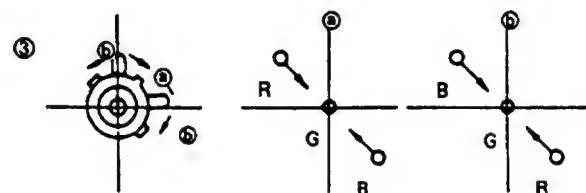
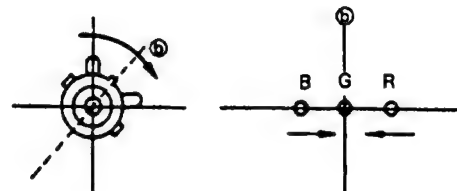
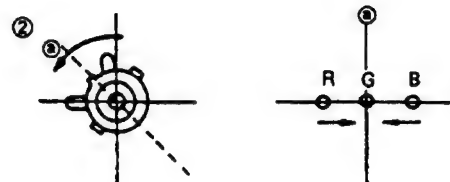
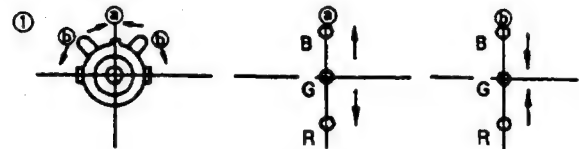


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below. (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

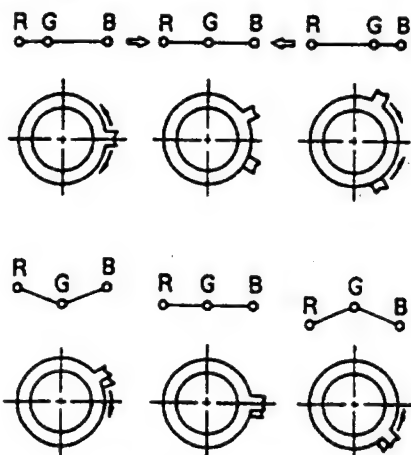
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



4. If the V.STAT magnet is moved in the direction of the ① and ② arrows, the red, green, and blue points move as shown below.

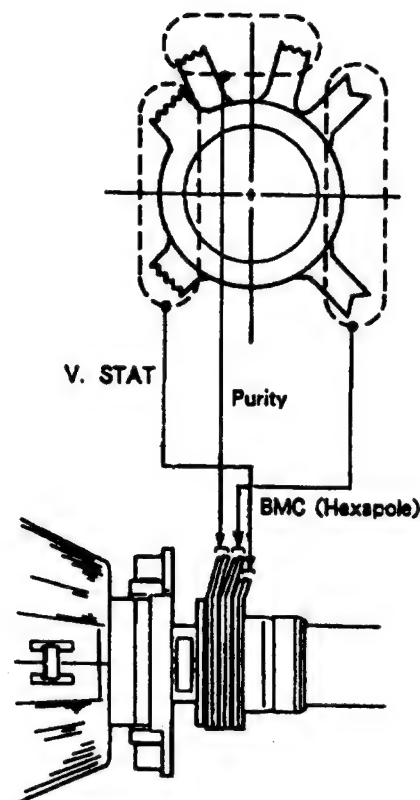


● Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.

Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

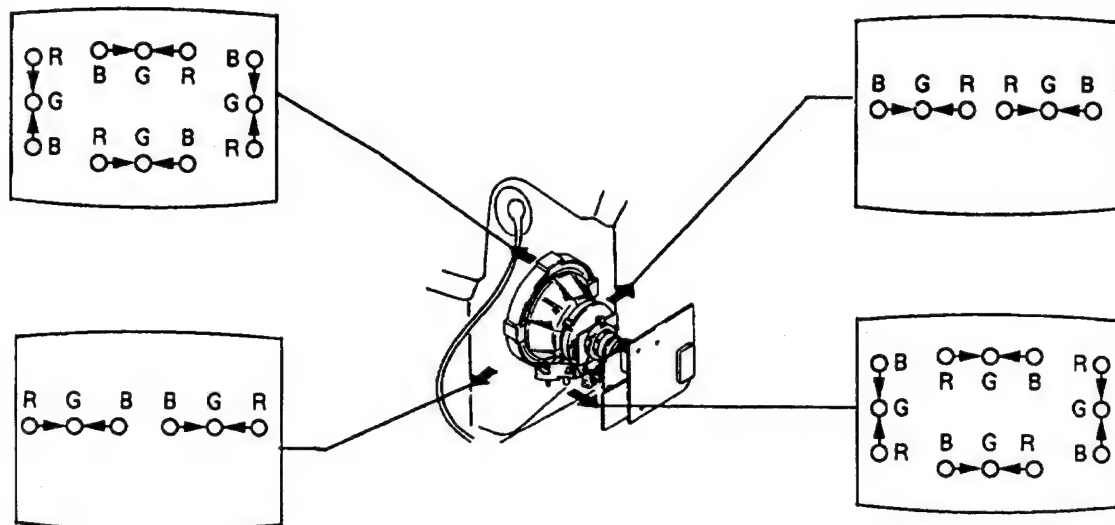


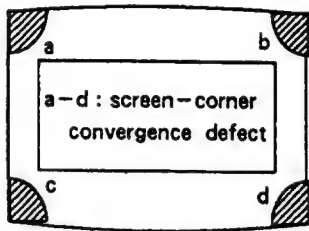
(2) Dynamic convergence adjustment

Preparations :

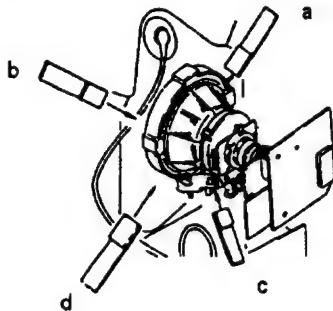
Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.



**(3) Screen corner convergence**

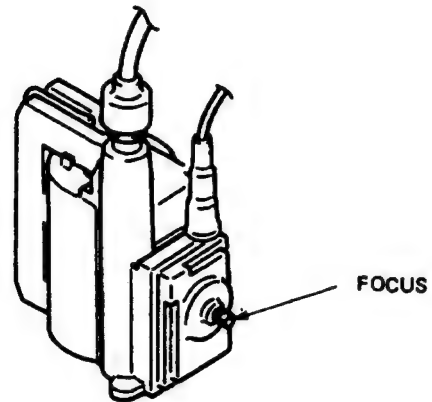
Install the permalloy assembly for the section with faulty.



Permalloy

**3-7. FOCUS**

Adjust the focus to optimize the screen.

**3-8. WHITE BALANCE****[ Screen G2 setting ]**

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

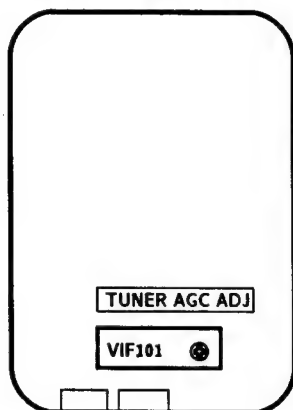
**[ White balance adjustment ]**

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

## SECTION 4 CIRCUIT ADJUSTMENTS

### 4-1. A BOARD ADJUSTMENTS

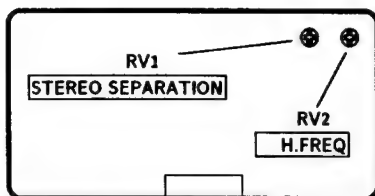


A BOARD (COMPONENT SIDE)

#### TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

### IFG5.5S SIF



IFG5.5S SIF -component side-

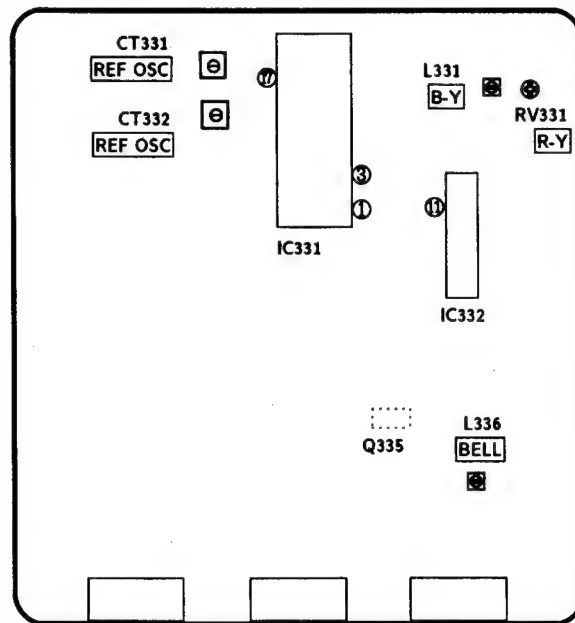
#### STEREO SEPARATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin ⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minimum.

#### H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin ⑫ IC4 and GND.
2. Connect a frequency counter to pin ④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ)  $15.625 \pm 50\text{Hz}$ .
4. After adjustment, remove the jumper.

### 4-2. B BOARD ADJUSTMENTS



B BOARD (COMPONENT SIDE)

#### REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8MHz)

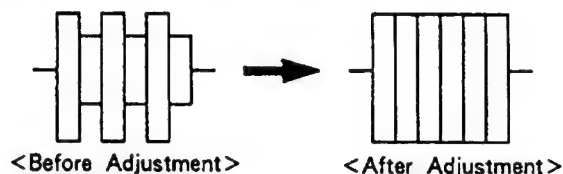
1. Input a PAL color bar signal.
2. Ground pin ⑦ of the IC331.
3. Adjust CT332 to obtain synchronization.

#### REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16MHz)

1. Input an NTSC358 color bar signal.
2. Ground pin ⑦ of IC331.
3. Adjust the CT331 to obtain synchronization.
4. Remove the jumper grounding pin ⑦ of IC331.

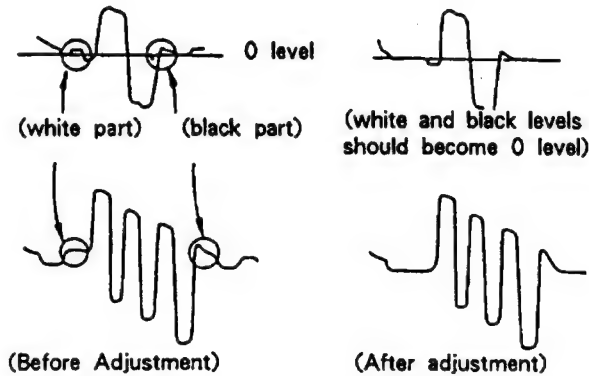
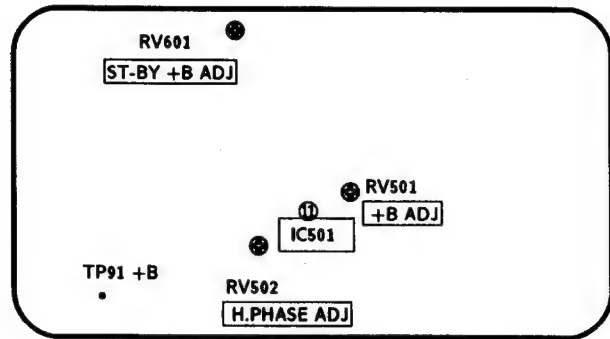
#### BELL FILTER ADJUSTMENT (L336)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.



**DISCRIMINATION ADJUSTMENTS  
(RV331 and L331)**

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC331.
3. Adjust RV331 until the white and black sections of the waveform at pin ① are at the 0 level.  
Connect the oscilloscope to pin ③ of IC331.
4. Adjust L331 until the white and black sections of the waveform at pin ③ are at the 0 level.

**4-3. D BOARD ADJUSTMENTS**

D BOARD (COMPONENT SIDE)

**+B ADJUSTMENT (RV501)**

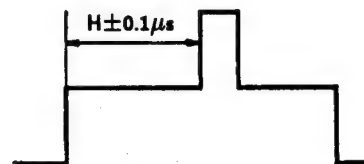
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain  $135 \pm 0.2V$ .

**ST-BY +B ADJUSTMENT (RV601)**

1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain  $135 \pm 3V$ .
4. Take the system out of ⏻ standby mode (remote commander).

**H.PHASE ADJUSTMENT (RV502)**

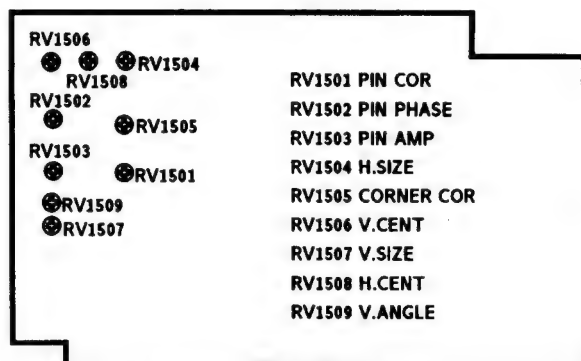
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to  $H \pm 0.1\mu s$ .



Standard of H. PHASE

Model Size	H
21 "	$5.6\mu s$
25 "	$5.1\mu s$
29 "	$5.5\mu s$

#### 4-4. J1 BOARD ADJUSTMENTS

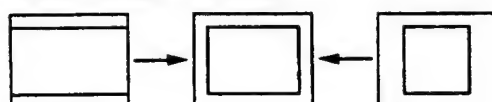


J1 BOARD (COMPONENT SIDE)

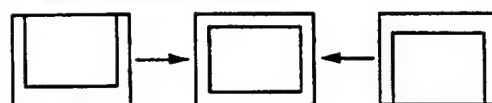
RV1508  
H. CENT (HORIZONTAL CENTER)



RV1504  
H. SIZE (HORIZONTAL SIZE)



RV1506  
V. CENT (VERTICAL CENTER)



RV1507  
V. SIZE (VERTICAL SIZE)



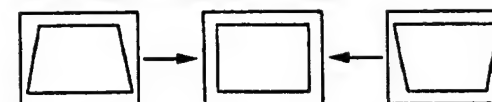
RV1509  
V. ANGLE (VERTICAL ANGLE)



RV1503  
PIN AMP (PINCUSHION AMPLIFIER)



RV1502  
PIN PHASE (PINCUSHION PHASE)



RV1501  
PIN. COR (PINCUSHION CORRECT)

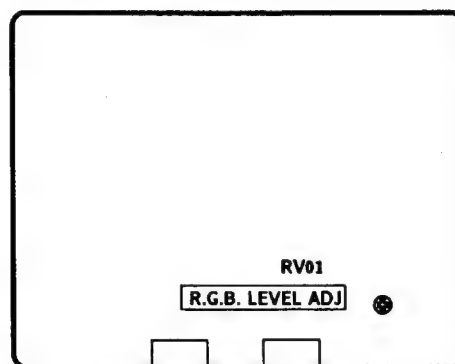


RV1505  
CORNER COR (CORNER CORRECT)



#### 4-5. V BOARD ADJUSTMENT

(KV-C2161B ONLY)



V BOARD (COMPONENT SIDE)

##### RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

## 4-6. SECONDARY ADJUSTMENTS

### SUB BRIGHTNESS ADJUSTMENT

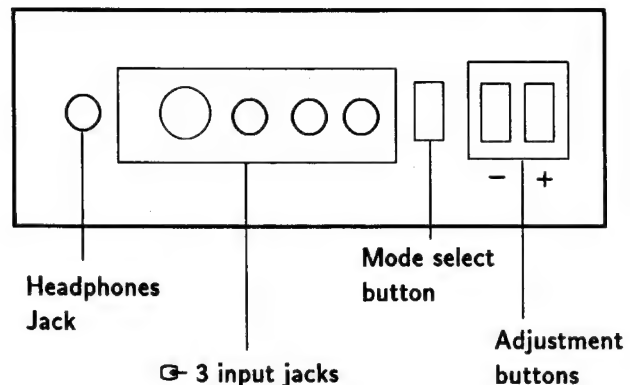
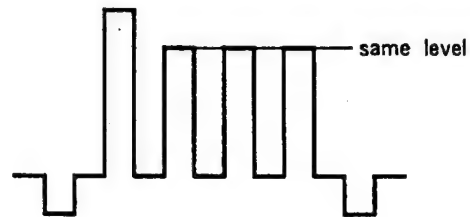
1. Set the system to receive a test pattern.
2. Press  $\rightarrow \cdot \leftarrow$  on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and - simultaneously, turn on the power. (SUB mode is obtained)
5. Minimize the  $\bullet$  contrast setting.
6. Adjust the  $\odot$  brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the  $\diamond$  (store) button of the remote commander. (SUB mode is released)

If there is no test color pattern

1. Set the system to receive a color pattern.
2. Press  $\rightarrow \cdot \leftarrow$  on the remote commander to put the system into normal mode.  
Set the  $\odot$  color to its normal state.
- 3-5. Steps are the same as above.
6. Since 20 IRE is nearly blue, adjust the  $\odot$  brightness control so that the blue barely glows.
7. Same as step 7 above.
8. Press  $\rightarrow \cdot \leftarrow$  on the remote commander to put the system into normal mode.

### SUB COLOR ADJUSTMENT

1. Set the system to receive color bars.
2. Press  $\rightarrow \cdot \leftarrow$  on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and - simultaneously, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the  $\diamond$  (store) button of the remote commander. (SUB mode is released)

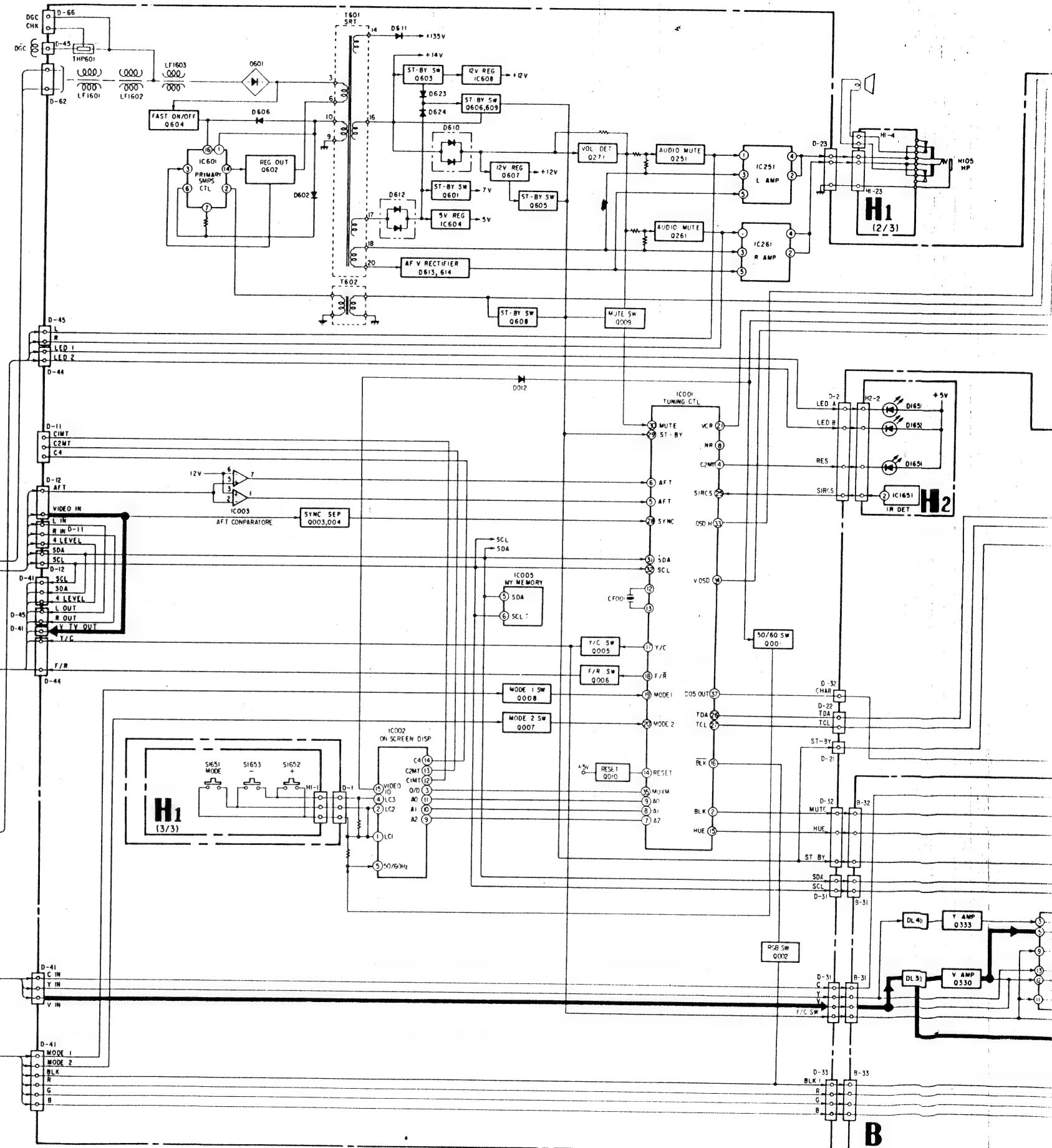
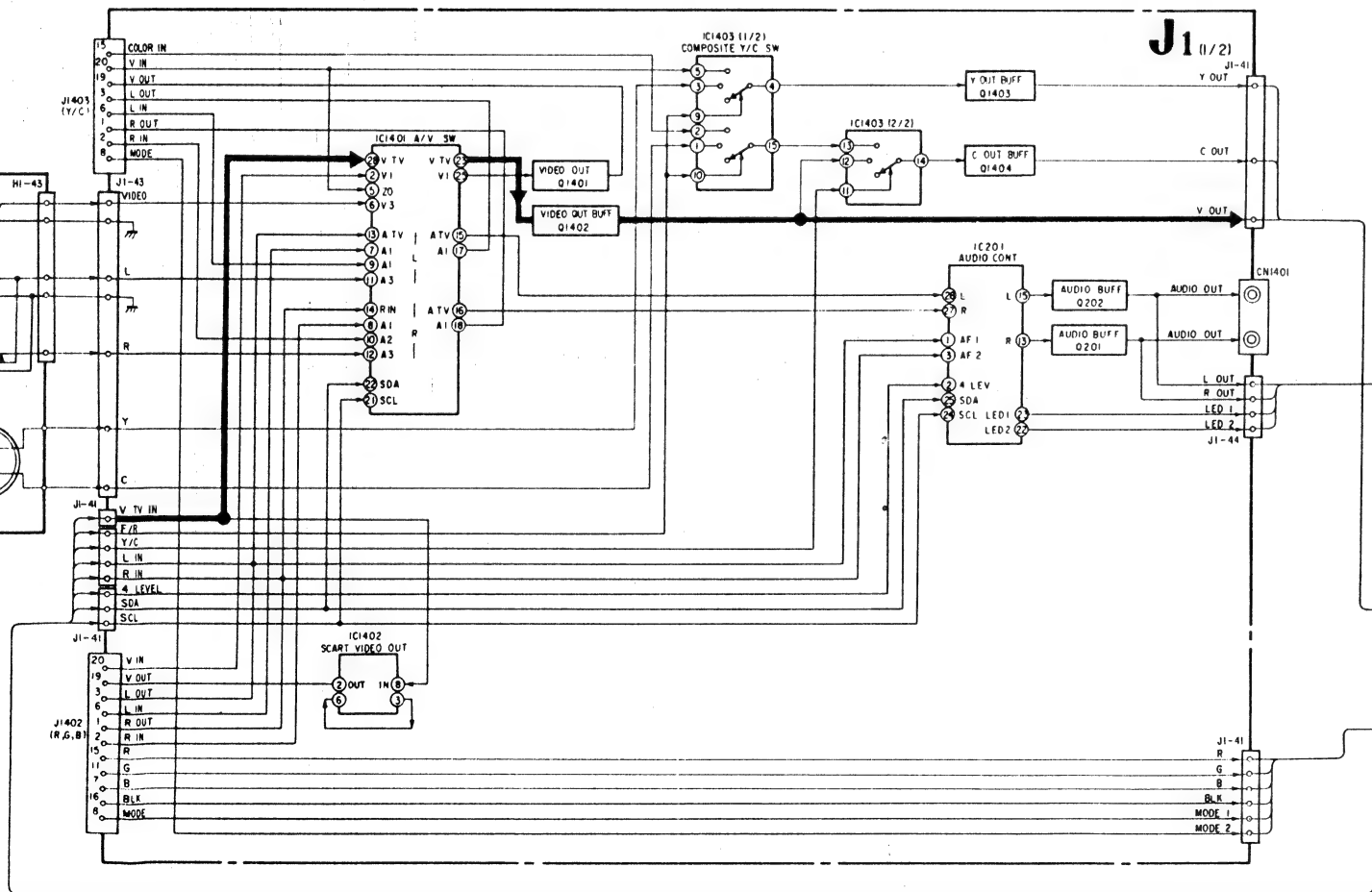
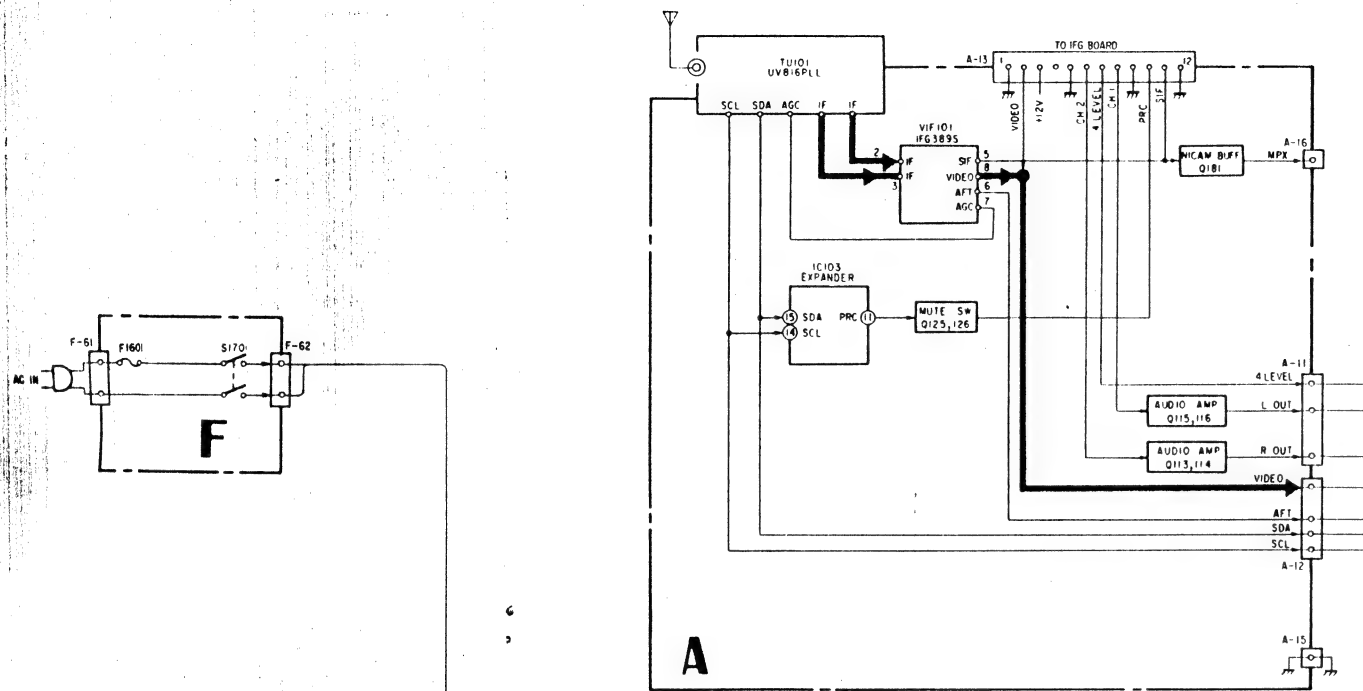


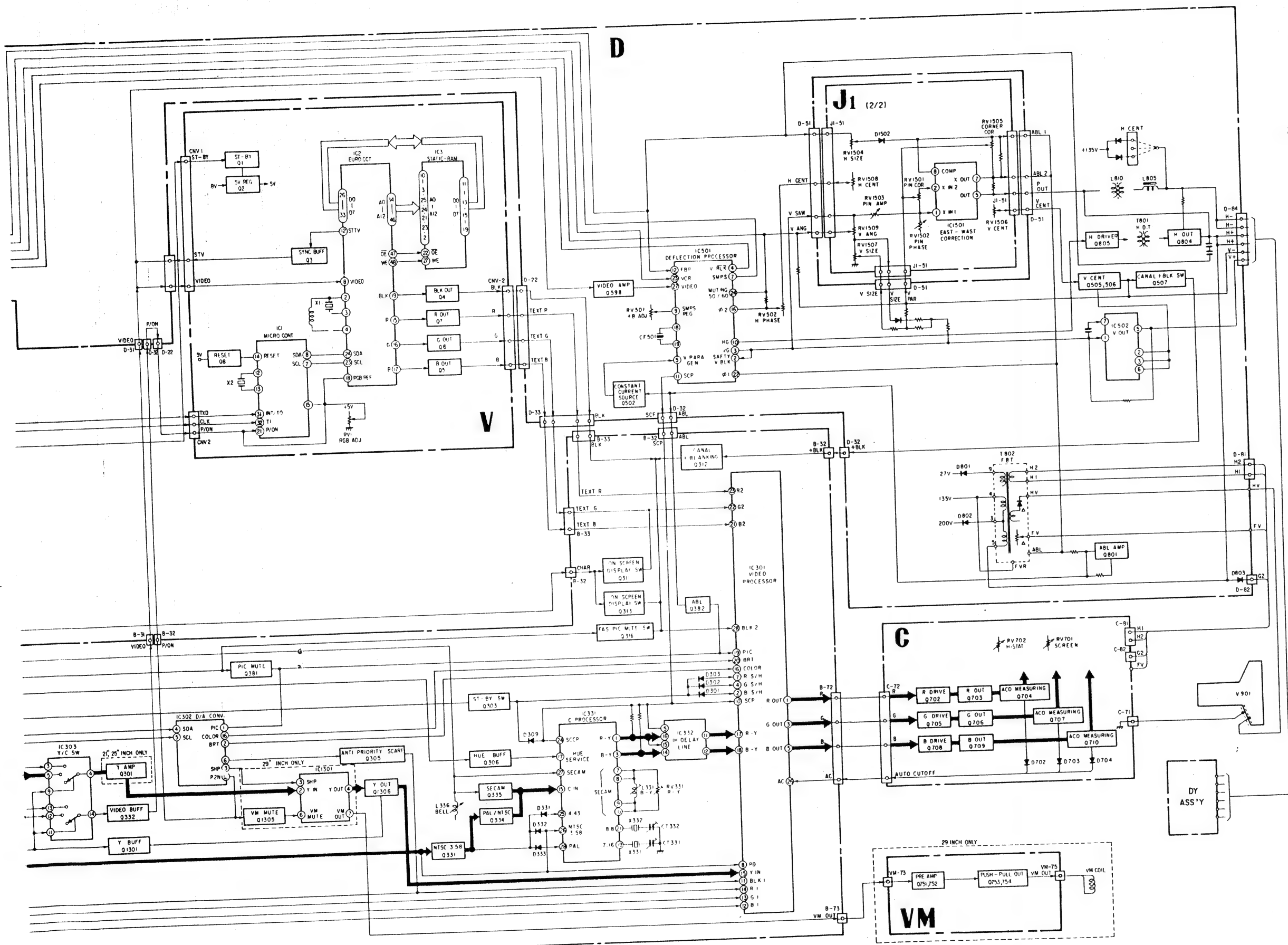
# MEMO



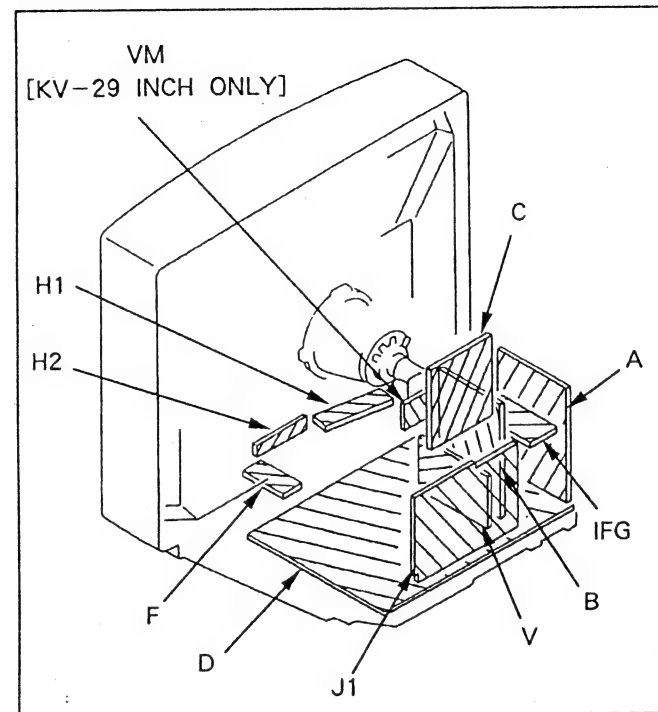
## SECTION 5 DIAGRAMS

**BLOCK DIAGRAM**





## 5-2. CIRCUIT BOARDS LOCATION



## 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

## Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  
pF:  $\mu\text{F}$  50WV or less are not indicated except for electrolytic.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5mm  
Rating electrical power:  $\frac{1}{4}\text{W}$

- Chip resistor is in  $1/10\text{W}$ .
- All resistors are in ohms.  
 $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{K}\Omega$
- : nonflammable resistor.
- : fusible resistor.
- $\Delta$  : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in V.
- Readings are taken with a  $10\text{M}\Omega$  digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- : B+ bus.
- : signal path.(RF)

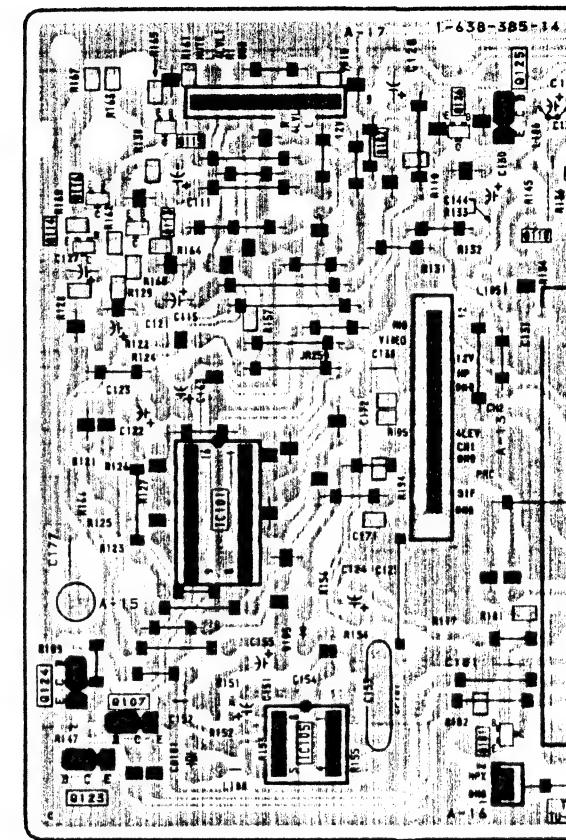
## Reference information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
FUSE	FPRD	: NONFLAMMABLE CARBON
	RS	: NONFLAMMABLE METAL OXIDE
COIL	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
CAPACITOR	*	: ADJUSTMENT RESISTOR
	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
CAPACITOR	PP	: POLYPROPYLENE
	PT	: MYLAR
CAPACITOR	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
CAPACITOR	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
CAPACITOR	ALR	: HIGH RIPPLE

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

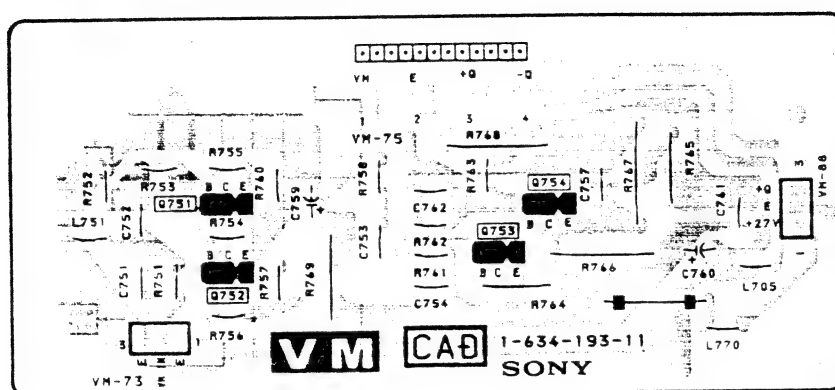
**A** [TUNER, SIF, VIF] **F** AC IN, POWER SW

-A Board-

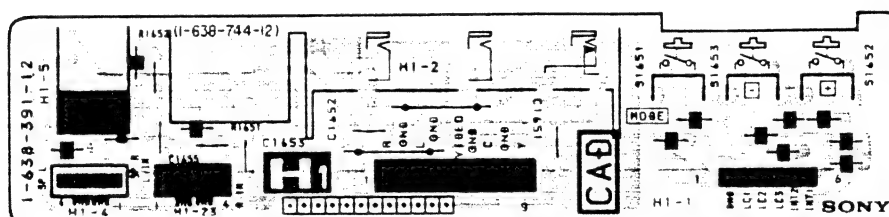




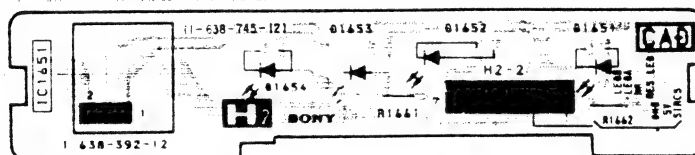
—VM Board— (29 INCH ONLY)



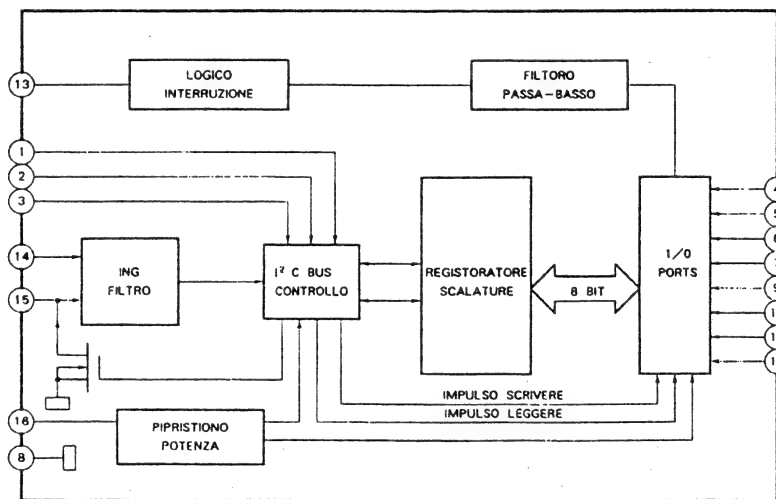
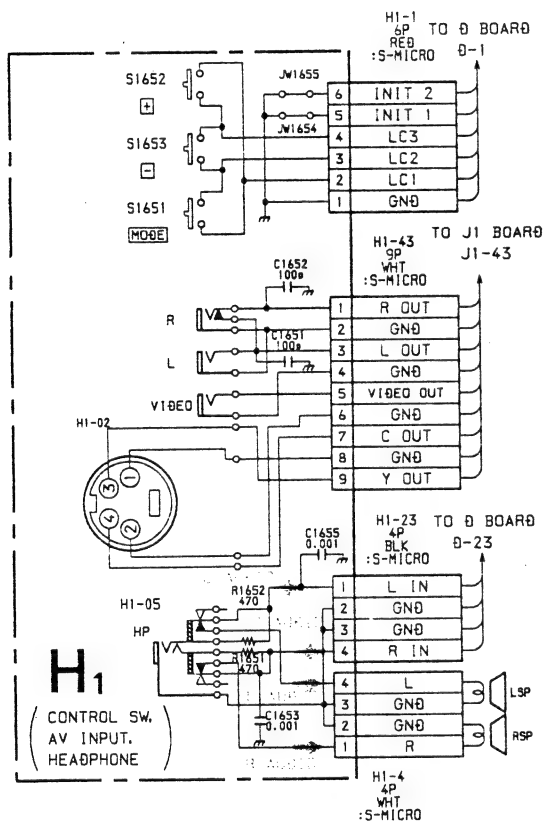
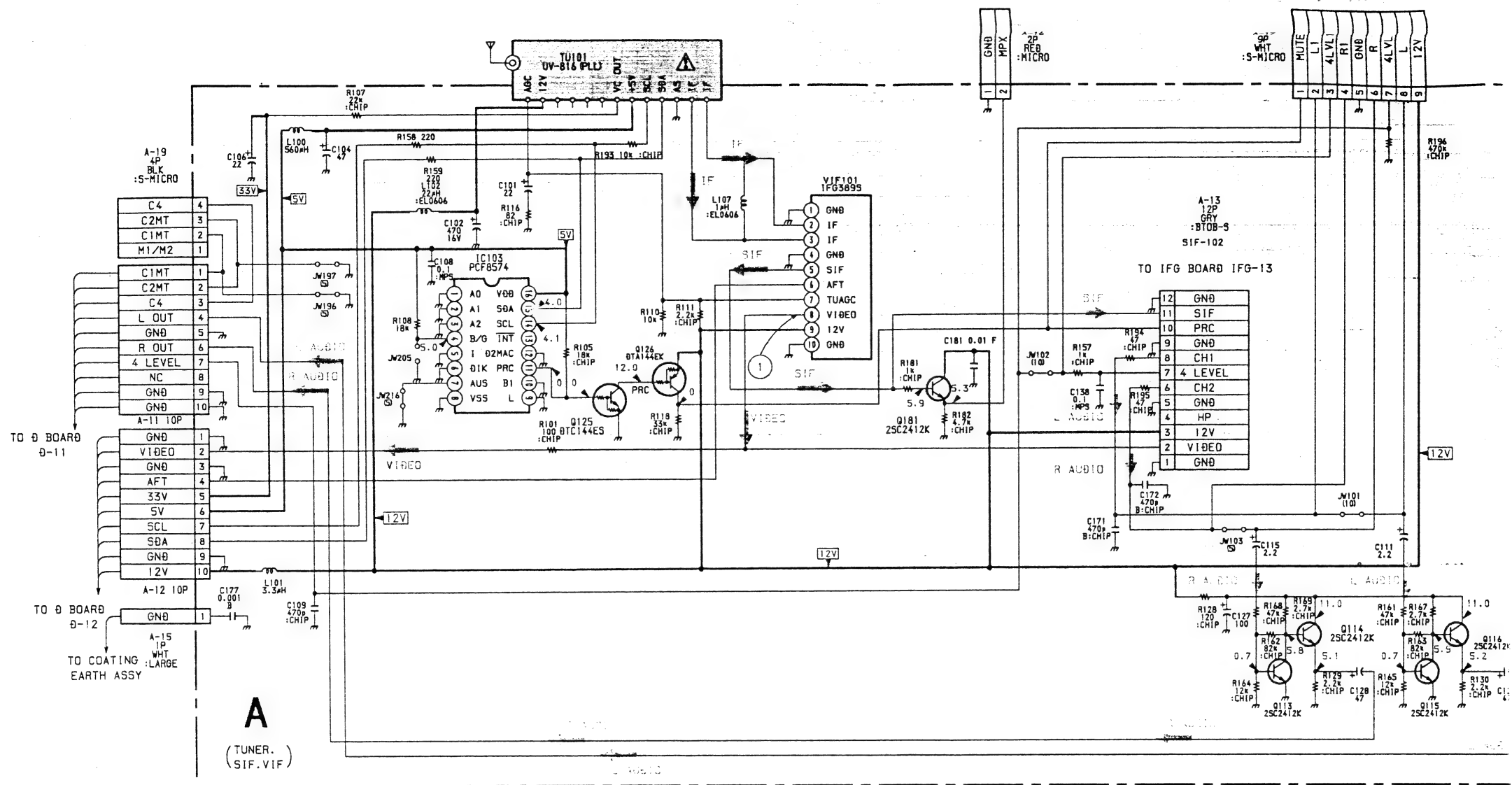
—H1 Board—



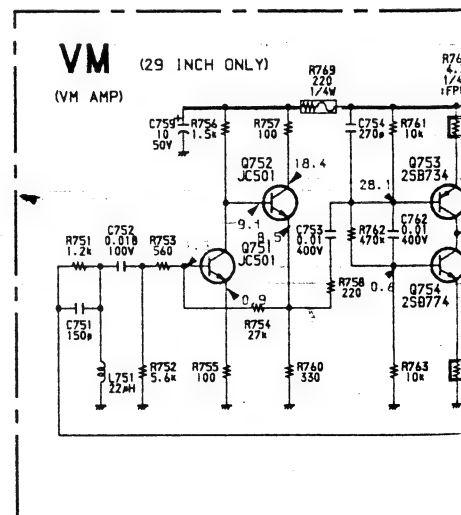
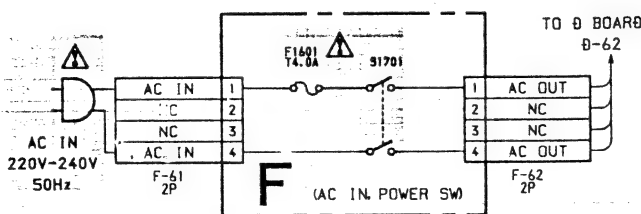
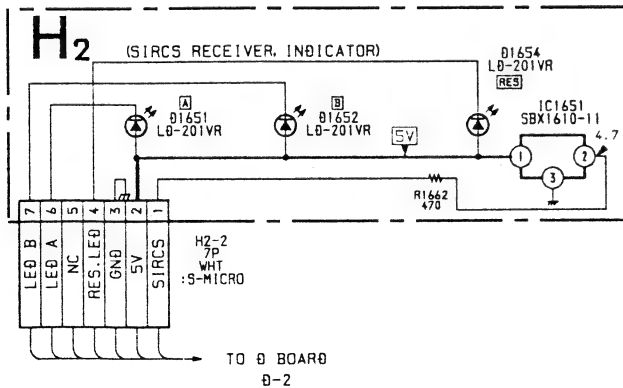
—H2 Board—



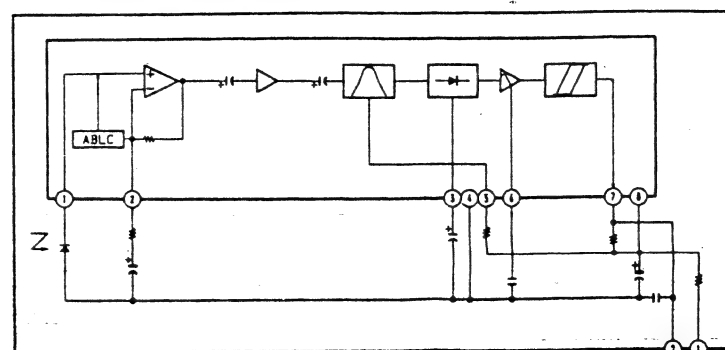




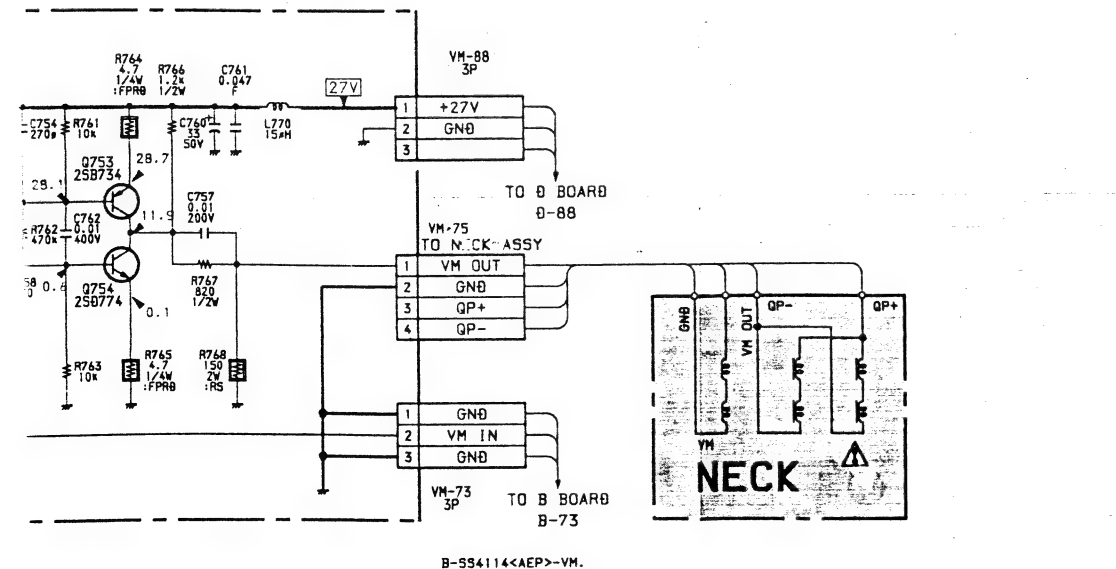
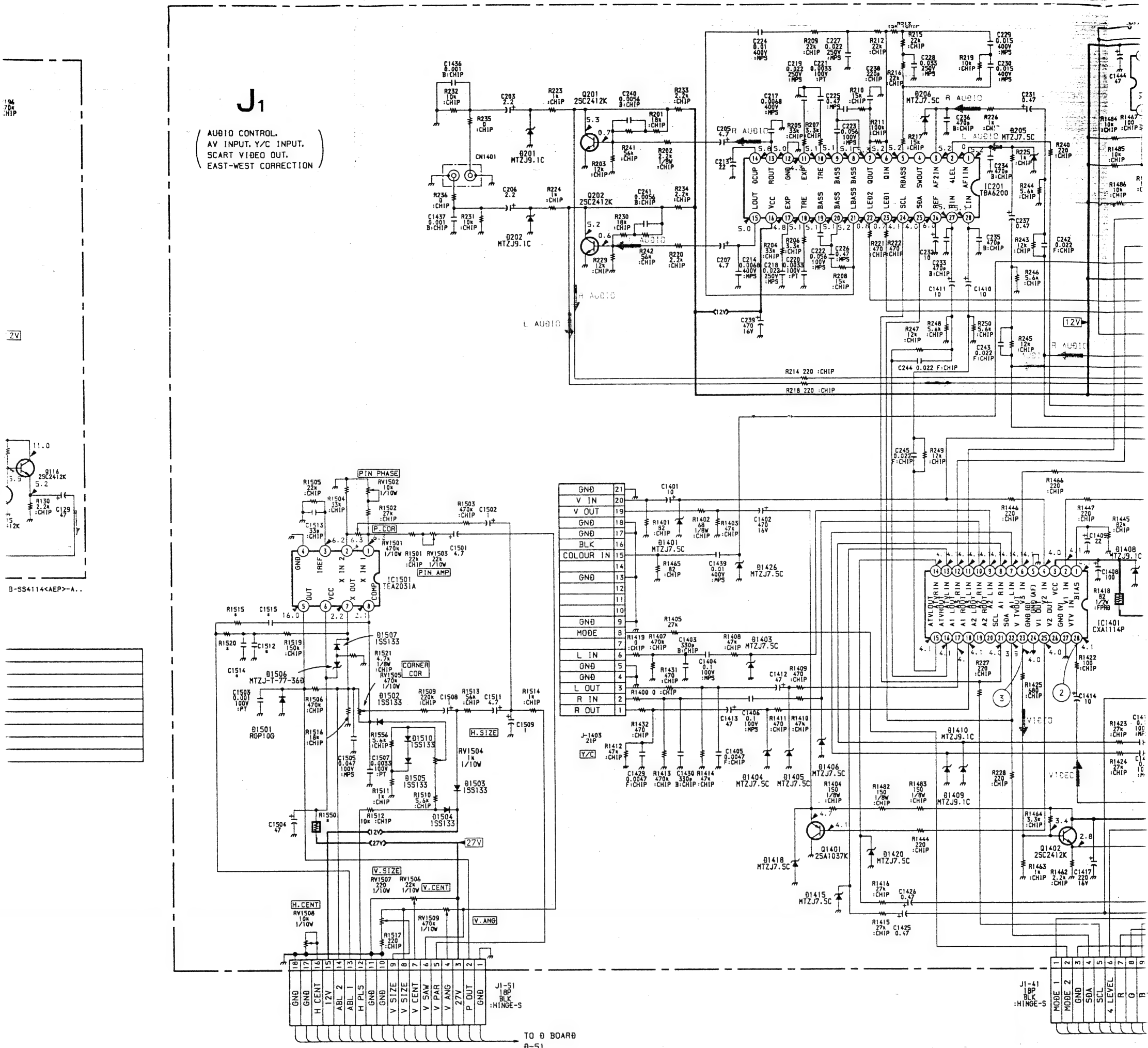
IC103	PCF8574	EXPANDER
Q113	2SC2412K	AUDIO AMP
Q114	2SC2412K	AUDIO AMP
Q115	2SC2412K	AUDIO AMP
Q116	2SC2412K	AUDIO AMP
Q125	DTC144ES	MUTE SW
Q126	DTA144EK	MUTE SW
Q181	2SC2412K	NICAM BUFFER



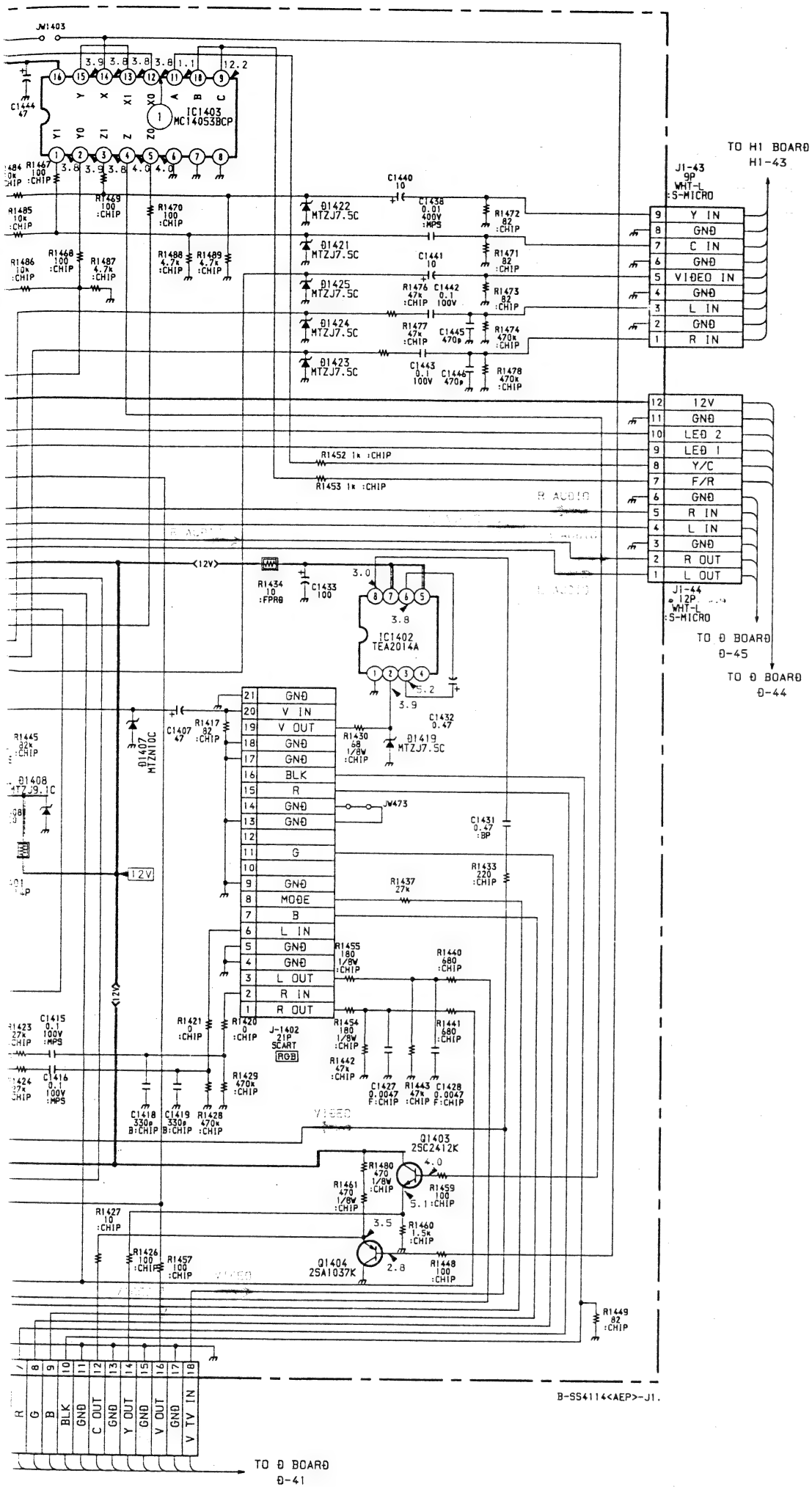
IC1651	SBX1610-11	INFRARED RECIEVER
D1651	LD-201VR	AUDIO CHANNEL A INDICATOR
D1652	LD-201VR	AUDIO CHANNEL B INDICATOR
D1654	LD-201VR	RESET



Q751	JC501	REF-AMP
Q752	JC501	REF-AMP
Q753	2SB734	PUSH-PULL OUT
Q754	2SD774	PUSH-PULL OUT



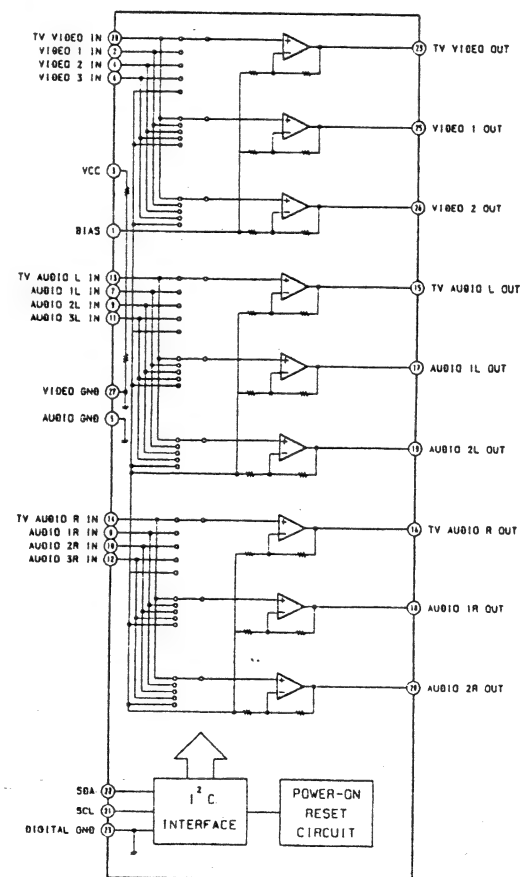
Y)
IP
IP
ULL OUT
ULL OUT



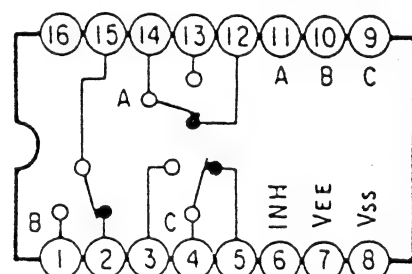
# J1 BOARD

IC201	TDA6200	AUDIO CONTROL
IC1401	CXA1114P	AV SW
IC1402	TEA2014A	SCART VIDEO OUT
IC1403	MC14053BCP	COMPOSITE Y/C SW
IC1501	TEA2031A	EAST-WEST CORRECTION
Q201	2SC24'2K	AUDIO R BUFF
Q202	2SC2412K	AUDIO L BUFF
Q1401	2SA1037K	VIDEO OUT
Q1402	2SC2412K	VIDEO OUT BUFF
Q1403	2SC2412K	Y OUT BUFF
Q1404	2SA1037K	C OUT BUFF
D201	MTZJ9.1C	PROTECT
D202	MTZJ9.1C	PROTECT
D205	MTZJ7.5C	PROTECT
D206	MTZJ7.5C	PROTECT
D1401	MTZJ7.5C	PROTECT
D1403	MTZJ7.5C	PROTECT
D1404	MTZJ7.5C	PROTECT
D1405	MTZJ7.5C	PROTECT
D1406	MTZJ7.5C	PROTECT
D1407	MTZN10C	PROTECT
D1408	MTZJ9.1C	REG
D1409	MTZJ9.1C	PROTECT
D1410	MTZJ9.1C	PROTECT
D1415	MTZJ7.5C	PROTECT
D1418	MTZJ7.5C	PROTECT
D1419	MTZJ7.5C	PROTECT
D1420	MTZJ7.5C	PROTECT
D1421	MTZJ7.5C	PROTECT
D1422	MTZJ7.5C	PROTECT
D1423	MTZJ7.5C	PROTECT
D1424	MTZJ7.5C	PROTECT
D1425	MTZJ7.5C	PROTECT
D1426	MTZJ7.5C	PROTECT
D1501	RGP10G	PROTECT
D1502	1SS133	DECOUPLING H SIZE
D1503	1SS133	CLIPPING V PARABORA
D1504	1SS133	CLIPPING H PULSE
D1505	1SS133	REG
D1506	MTZJ36D	PROTECT
D1507	1SS133	PROTECT
D1510	1SS133	REG

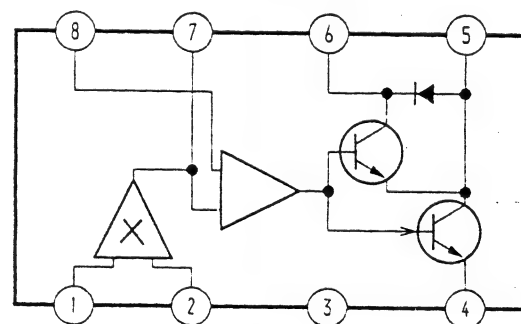
## J1 BOARD IC1401 CXA1114P



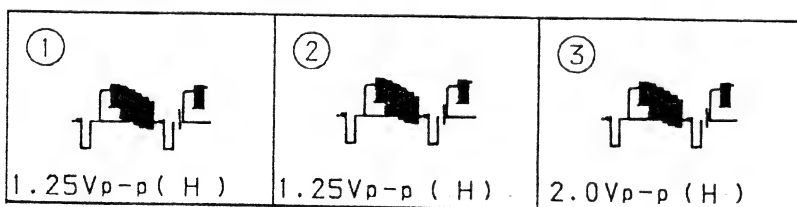
## J1 BOARD IC1403 MC14053BCP



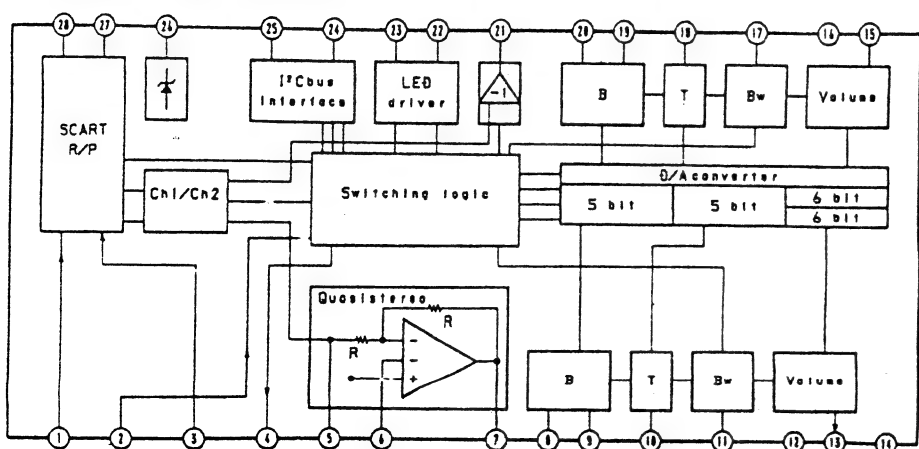
## J1 BOARD IC1501 TEA2031A



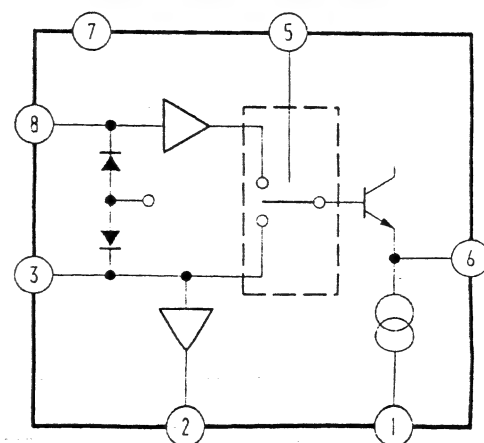
## WAVEFORMS J1 BOARD



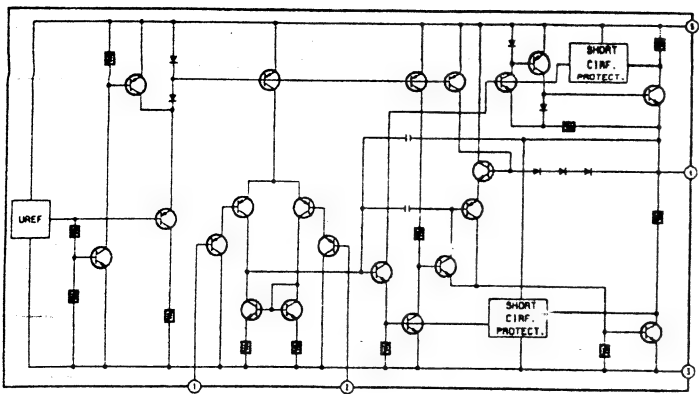
## J1 BOARD IC201 TDA6200



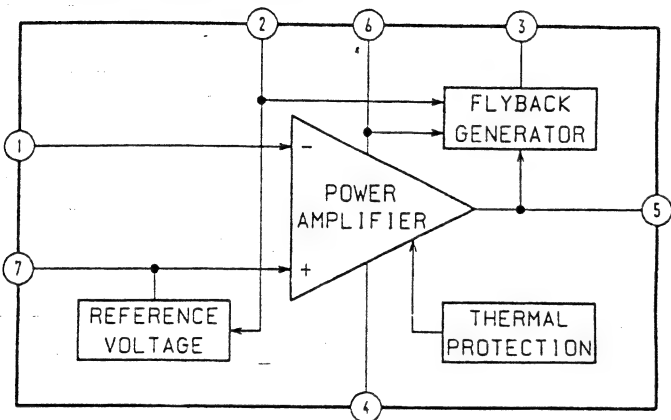
## J1 BOARD IC1402 TEA2014A



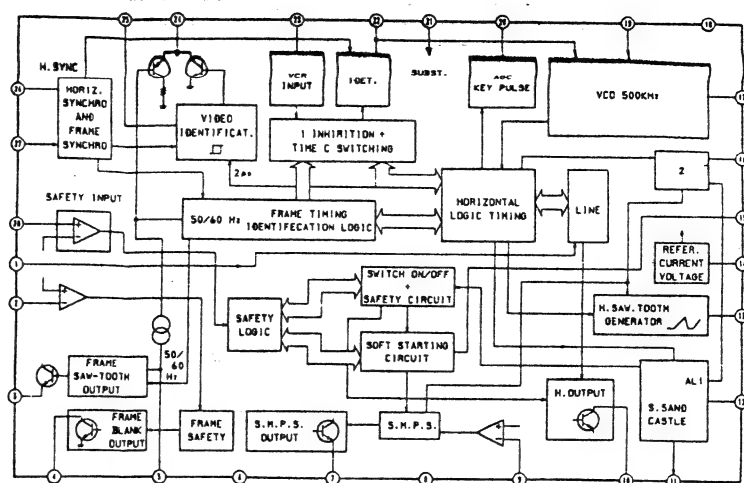




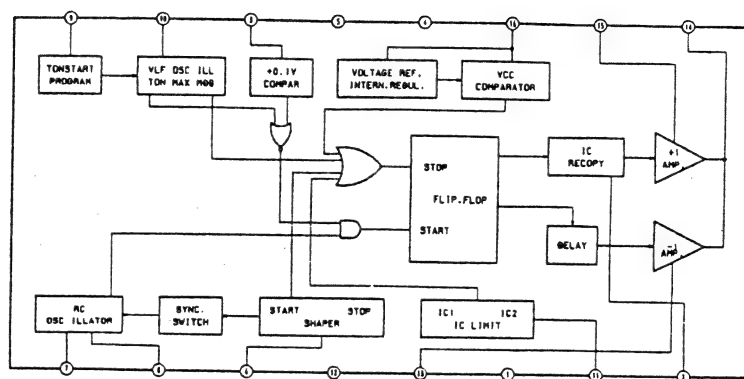
D BOARD IC502 TDA8170



D BOARD IC501 TEA2028B



D BOARD IC601 TEA2260

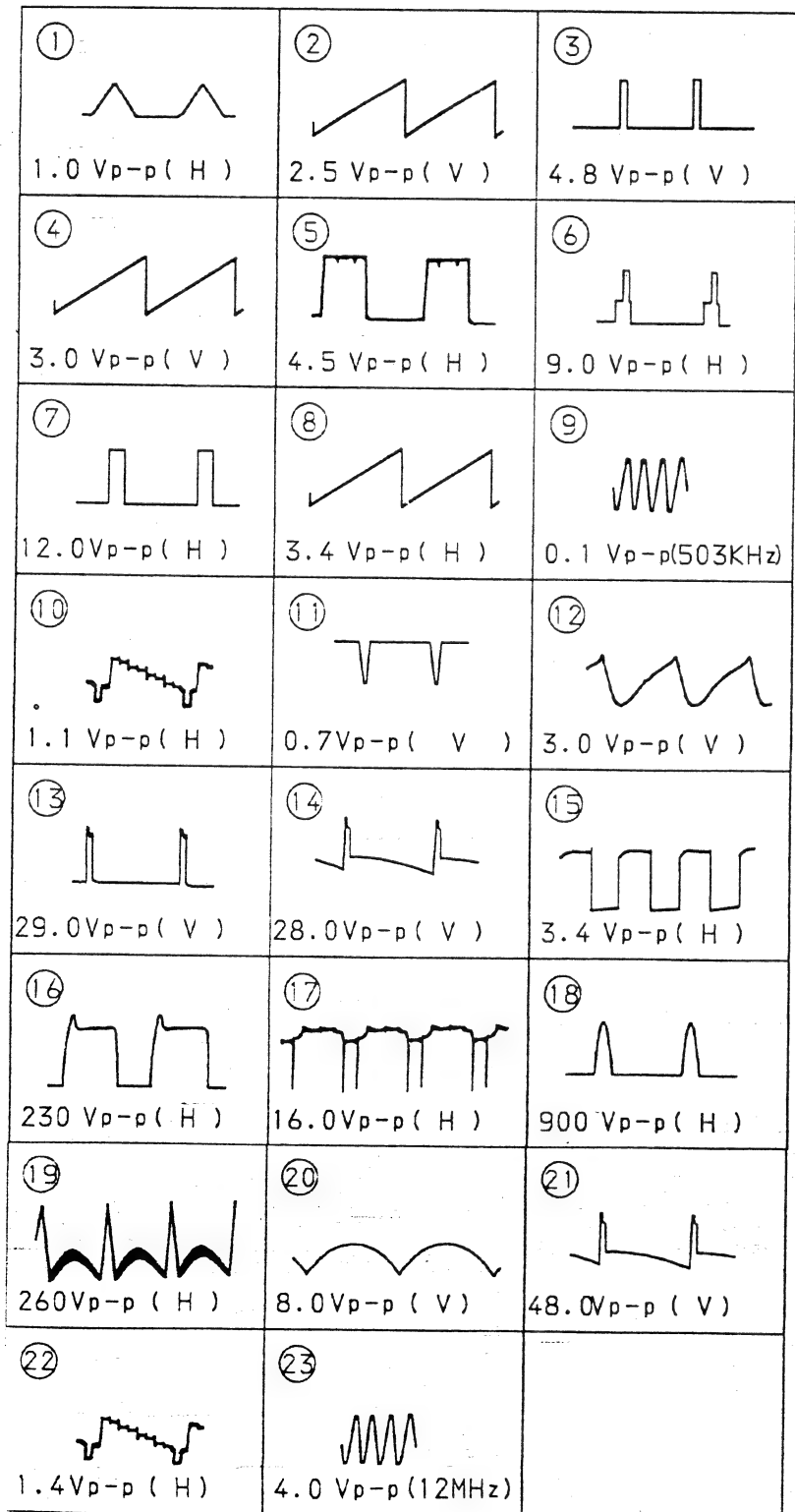


## • D BOARD

IC001	SDA20560-AD12	FUNIT
IC002	MC14051BCP	ON S
IC003	BA4558	AFT (
IC005	SDA2546	MY K
IC251	TDA2050	AUDIC
IC261	TDA2050	AUDIC
IC501	TEA2028B	DEPLE
IC502	TDA8170	V OU
IC601	TEA2260	PRIMA
IC604	TEA7605	+ 5V
IC608	MC7812CT	+ 12V

Q001	DTC144EK	50/60
Q002	DTC144EK	BLK S
Q003	2SA1037K	SYNCH
Q004	2SA1037K	SYNCH
Q005	DTC144EK	Y/C
Q006	DTC144EK	FRONT
Q007	2SC2412K	MODE
Q008	2SC2412K	MODE
Q009	2SC2412K	MUTE
Q010	2SC2412K	RESET
Q251	2SC2412K	AUDIO
Q261	2SC2412K	AUDIO
Q271	2SC2412K	VOLTA
Q502	2SA1037K	CONST
Q505	2SD774-4	V CEN
Q506	2SB734-3	V CEN
Q507	2SA1037K	CANAL
Q598	2SA1037K	VIDEO
Q601	2SB1357T114EF	STBY S
Q602	2SD1548	REG OC
Q603	2SB1357T114EF	STBY S
Q604	2SA1037K	FAST C
Q605	2SC2412K	STBY S
Q606	2SC2412K	STBY S
Q607	2SD2095	+ 12V
Q608	2SC2412K	STBY S
Q609	2SD789-3	STBY S
Q801	2SC2412K	ABL AM
Q804	2SD1941-06	H OUT
Q805	2SC2688-L	H DRIVE

## • WAVEFORMS D BOARD



## D BOARD \* MARK

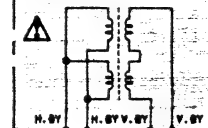
	21"	25"	29"		21"	25"	29"
C519	0.47	0.47	0.33	L806	DCC-H	DRAM CORE	HCC DUST
C526	27P	27P	22P			(CDI)	CORE 3.9mH
C536	4.7 16V	10 16V	10 16V	L810	WITH CORE	PMC	PMT
C617	220 25V	100 50V	100 50V				
C620	1 63V	0.47 50V	0.47 50V	R077	1K	-	1K
C811	1 200V	2 200V	2 200V	R525	1K	1K	-
C815	1 200V	1 200V	0.82 200V	R531	-	120K	120K
C817	0.0106 1.4KV	0.015 1.4KV	0.017 1.4KV	R532	-	1K	1K
C821	680P 2KV	680P 2KV	470P 2KV	R533	180	0	0
				R535	4.7M	2.2M	2.2M
D-88	-	-	3P	R545	39K	22K	22K
				R547	5.6K	3.3K	3.3K
D506	DA204K	DA204K	-	R548	1.2 1W F	1 1W F	1 1W F
D509	-	1SS133	1SS133	R549	470 2W F	390 2W F	390 2W F
D514	5mm JW	5mm JW	1SS133	R552	1.2K 1W	-	-
D515	-	-	1SS133	R561	-	-	270K
D807	-	ERC26-15S	ERC06-15S	R570	-	-	680
D808	ERD28-08S	ERD29-08J	ERD29-08J	R600	-	1	1
				R603	15 3W F	12 3W F	12 3W F
JW202	-	-	5mm	R607	4.7K	4.7K	5.6K
JW203	5mm	5mm	-	R631	27K 2W	27K 2W	-
JW204	5mm	5mm	-	R643	0.15 2W F	0.12 2W F	0.12 2W F
JW205	-	-	5mm	R811	100 1W	22 2W F	22 2W F
JW206	5mm	5mm	-	R812	75K 1/2W	68K 1/2W	51K 1/2W
JW207	5mm	5mm	-	R825	1 1W F	0.47 1W F	0.47 1W F
JW216	15mm	15mm	-	R5503	4.7	4.7	10
JW229	10mm	10mm	-	R5506	-	-	12K
L801	-	-	3.9mH				

- : NOT MOUNTED





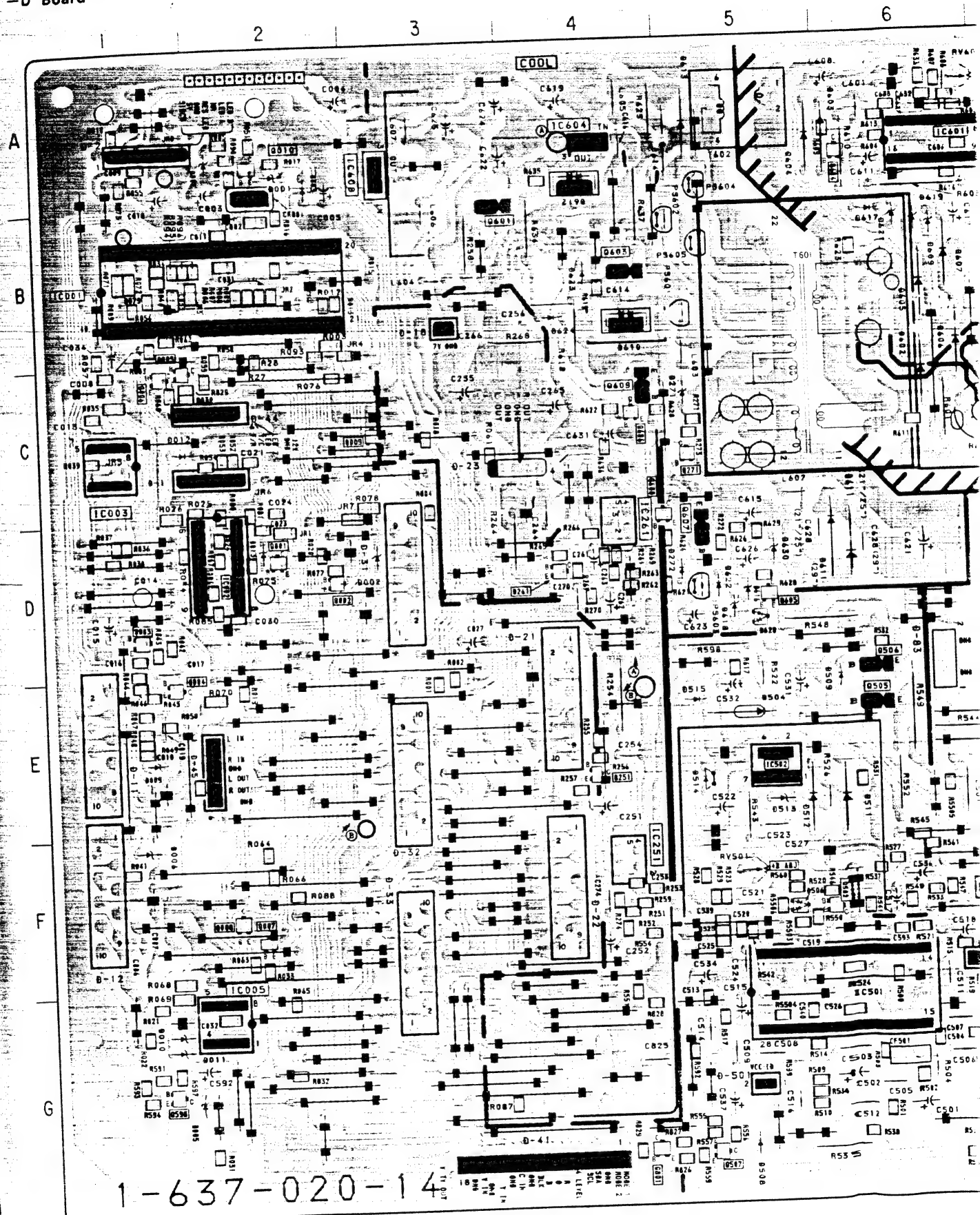




**D**

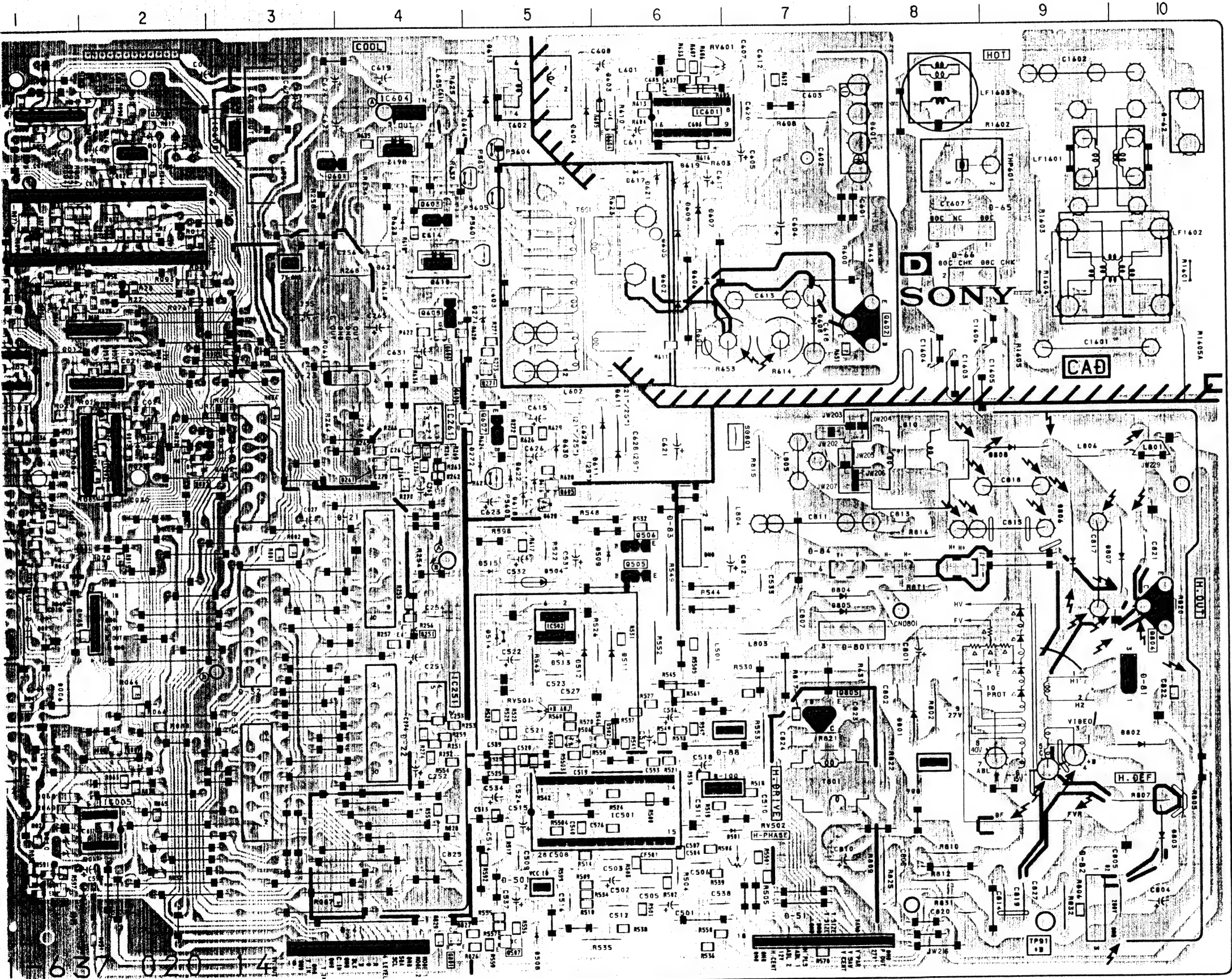
TUNING CONTROL, POWER CONTROL,  
AUDIO OUT, H/V OUT

**-D Board-**

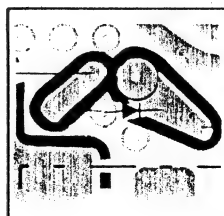




UNING CONTROL, POWER CONTROL,  
UDIO OUT, H/V OUT



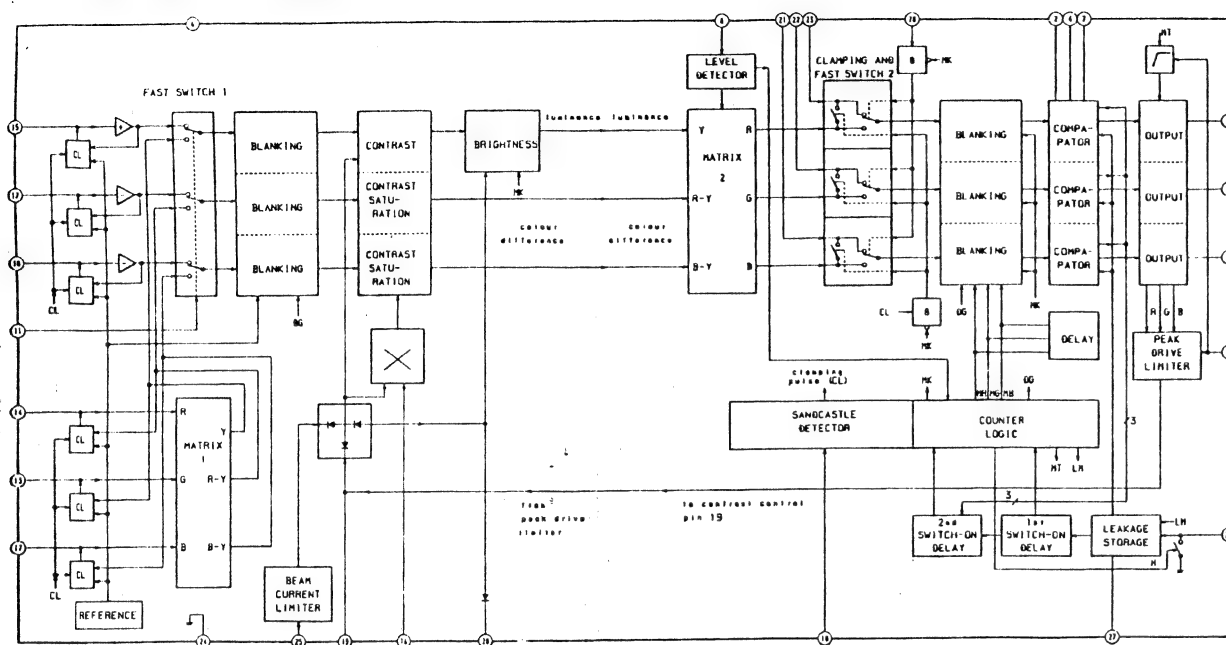
IC		D012	C-1
IC001	B-2	D013	D-2
IC002	C-2	D271	C-5
IC003	C-1	D501	G-7
IC005	G-2	D504	E-5
IC251	F-4	D506	F-5
IC261	D-4	D508	G-5
IC501	G-6	D509	F-5
IC502	E-5	D511	E-6
IC601	A-6	D512	E-5
IC604	A-4	D513	E-5
IC608	A-3	D514	E-5
		D515	E-5
		D601	A-8
		D602	C-6
		D603	A-5
		D604	A-4
		D605	B-6
		D606	B-6
		D607	B-6
		D608	C-7
		D609	B-6
		D610	B-4
		D611	D-6
		D612	A-4
		D613	A-5
		D614	A-5
		D616	D-5
		D617	B-6
		D618	D-5
		D619	B-6
		D620	D-5
		D621	B-6
		D622	D-5
		C323	B-4
		D624	B-4
		D630	D-5
		D801	F-8
		D802	F-10
		D803	G-10
		D804	E-7
		U805	E-7
		D806	E-9
		D807	E-10
		D808	D-9
TRANSISTOR		VARIABLE RESISTOR	
Q001	C-2	RV501	F-5
Q002	C-2	RV502	G-7
Q003	D-1	RV601	A-6
Q004	D-4		
Q005	C-1		
Q006	C-1		
Q007	F-2		
Q008	F-2		
Q009	C-3		
Q010	A-2		
Q251	E-4		
Q271	C-5		
Q502	F-5		
Q505	E-6		
Q506	D-6		
Q507	G-4		
Q598	G-1		
Q601	B-3		
Q602	C-8		
Q603	B-4		
Q604	A-6		
Q605	D-5		
Q606	C-4		
Q607	D-5		
Q608	C-4		
Q609	C-4		
Q801	G-4		
Q804	E-10		
Q805	F-7		
DIODE		TP	
D001	A-2		
D002	D-3		
D003	A-2		
D005	G-1		
D006	F-1		
D007	A-2		
D009	E-1		
D010	G-1		
D011	G-1	TP91	G-9



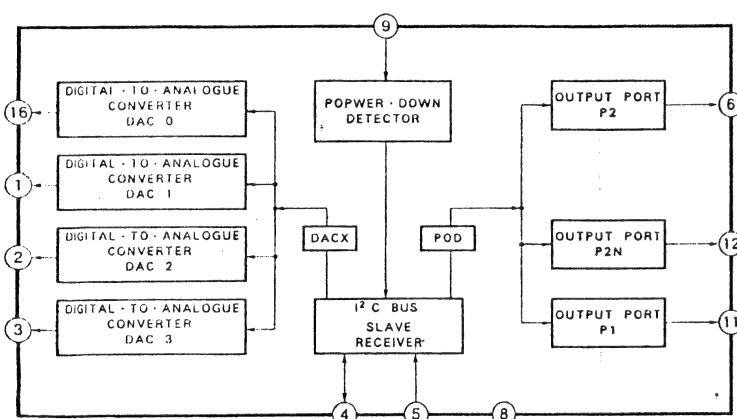
**NOTE:**  
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.



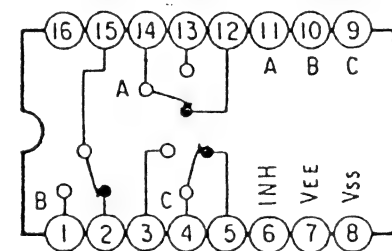
B BOARD IC301 TDA4580-V7



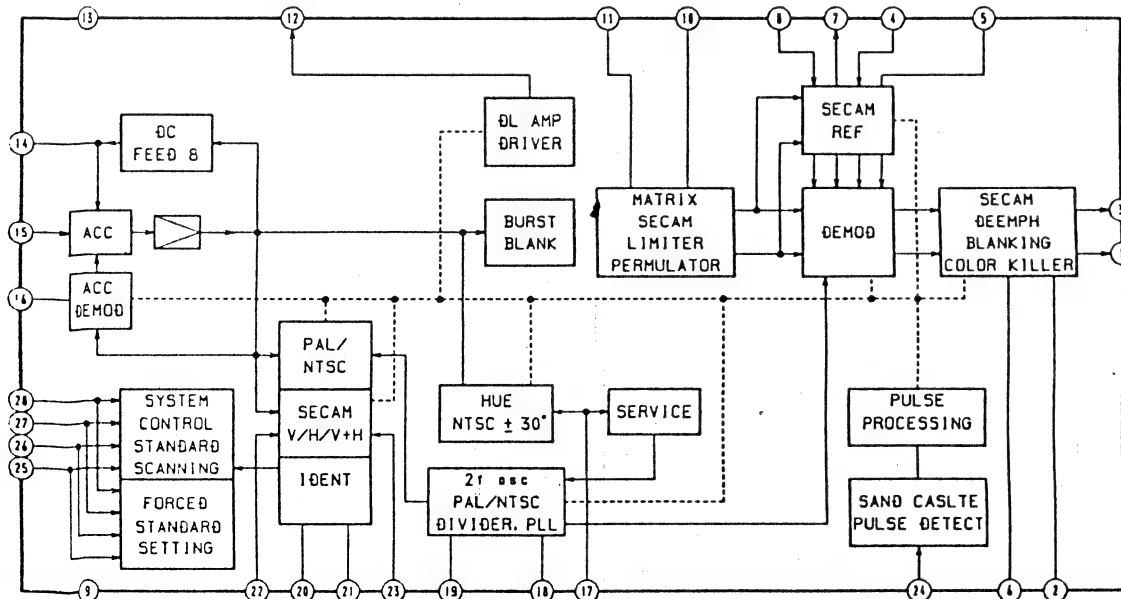
B BOARD IC302 TDA8442-N3



B BOARD IC303 MC14053BCP



B BOARD IC331 TDA4650



• WAVEFORMS B BOARD

① PAL, SECAM 4.8 Vp-p (H)	① NTSC 3.58/4.43 5.0Vp-p (H)	② PAL, SECAM 4.8Vp-p (H)	② NTSC 3.58/4.43 4.8Vp-p (H)	③ PAL, SECAM 4.8Vp-p (H)	③ NTSC 3.58/4.43 4.8Vp-p (H)
④ 9.5Vp-p (H)	⑤ PAL 0.4Vp-p (H)	⑤ SECAM 0.36Vp-p (H)	⑤ NTSC 3.58/4.43 0.46Vp-p (H)	⑥ PAL, SECAM 0.9Vp-p (H)	⑥ NTSC 3.58/4.43 0.7Vp-p (H)
⑦ PAL, SECAM 1.1 Vp-p (H)	⑦ NTSC 3.58/4.43 1.25Vp-p (H)	⑧ PAL 0.5Vp-p (H)	⑧ SECAM 1.1Vp-p (H)	⑧ NTSC 3.58/4.43 0.4Vp-p (H)	⑨ PAL 0.6Vp-p (H)
⑨ SECAM 1.5 Vp-p (H)	⑨ NTSC 3.58/4.43 0.6Vp-p (H)	⑩ SECAM 0.75Vp-p (H)	⑩ SECAM 0.2Vp-p (H)	⑫ PAL 0.2Vp-p (H)	⑫ SECAM 0.12Vp-p (H)
⑫ NTSC 3.58/4.43 0.17Vp-p (H)	⑬ PAL 0.4Vp-p (H)	⑬ SECAM 0.12Vp-p (H)	⑬ NTSC 3.58/4.43 0.3Vp-p (H)	⑭ PAL 1.25 Vp-p (H)	⑭ SECAM 1.25Vp-p (H)
⑭ NTSC 3.58/4.43 1.1Vp-p (H)	⑮ PAL 1.25Vp-p (H)	⑮ SECAM 1.25 Vp-p (H)	⑮ NTSC 3.58/4.43 1.2Vp-p (H)	⑯ PAL, NTSC 0.5Vp-p (H)	⑯ NTSC 3.58/4.43 0.5Vp-p (H)

As to the voltage value shown by the mark ※ on the Schematic Diagram, see the another list.

		PAL	SECAM	NTSC3.58	NTSC4.43
IC301	(8)	0.1	0.1	5.8	0.1
	(26)	6.7	6.8	5.1	6.5
IC331	(19)	3.1	3.6	3.1	2.8
	(21)	3.0	3.5	2.9	2.7
	(22)	5.6	5.6	7.1	7.2
	(23)	7.5	7.0	5.6	5.6
	(25)	0.1	0.1	0.1	5.8
	(26)	0.1	0.1	5.8	0.1
	(27)	0.1	5.8	0.1	0.1
	(28)	5.9	0.1	0.1	0.1
	(B)	0.1	0.1	5.8	0.1
	(C)	0.3	0.4	0	0.8
Q331	(B)	4.4	4.4	4.4	4.4
Q333	(B)	4.9	0.1	4.8	4.8
Q334	(B)	0.1	4.8	0.1	0.1
Q335	(B)	0.1	4.8	0.1	0.1



IC301	TDA4580-V7	VIDEO PROCESSOR
IC302	TDA8442-N3	D/A CONVERTER 1 <sup>2</sup> C BUS
IC303	MC14053BCP	Y/C COMP SW
IC331	TDA4650	COLOR PROCESSOR
IC332	TDA4660-V2	1H-DEALY
IC1301	HIC2110	SHARPNESS CONTROL (29 INCH ONLY)

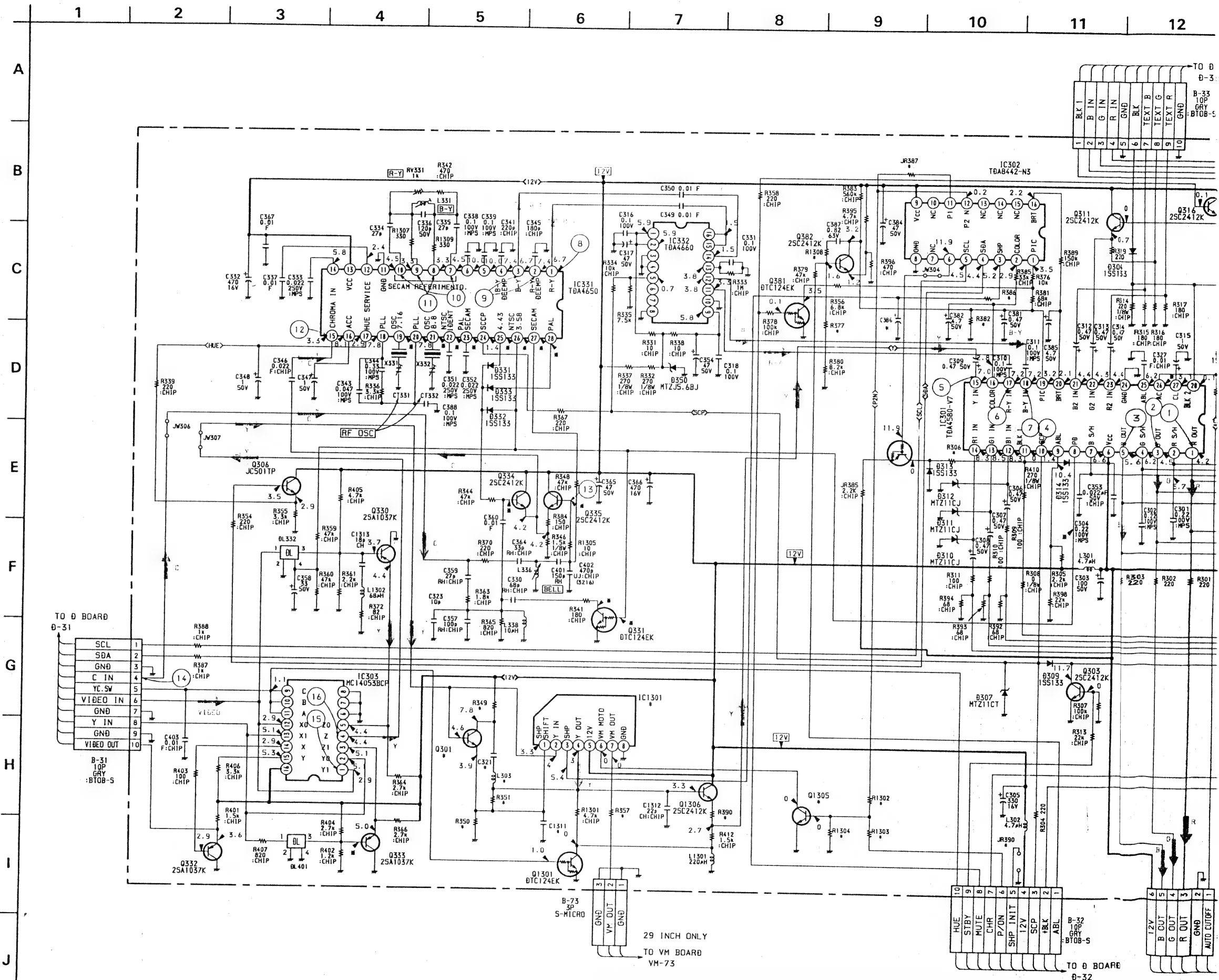
Q301	2SC2412K	Y AMP (21/25 INCH ONLY)
Q303	2SC2412K	STBY SW
Q305	DTA144EK	ANTI PRIORITY SCART
Q306	JC501	VIDEO BUF (HUE)
Q311	2SC2412K	ON SCREEN DISPLAY SW
Q312	2SC2412K	CANRL + BLK
Q313	2SC2412K	ON SCREEN DISPLAY
Q316	2SC2412K	FAS PICTURE MUTE SW
Q330	2SA1037K	VIDEO AMP
Q331	DTC124EK	NTSC SW
Q332	2SA1037K	VIDEO BUFF
Q333	2SA1037K	Y AMP
Q334	2SC2412K	PAL/NTSC SW
Q335	2SC2412K	SECAM SW
Q381	DTC124EK	MUTE
Q382	2SC2412K	ABL
Q1301	DTC124EK	Y BUFF
Q1305	2SC2412K	Y OUT (29 INCH ONLY)
Q1306	2SC2412K	Y OUT

D301	ISS133	ACO AT STBY
D302	ISS133	ACO AT STBY
D303	ISS133	ACO AT STBY
D304	ISS133	DECOUPLING BLK
D305	ISS133	PROT
D307	MTZ11C	PROT
D309	ISS133	PROT
D310	MTZ11C	PROT
D311	MTZ11C	PROT
D312	MTZ11C	PROT
D313	ISS133	PROT
D314	ISS133	PROT
D315	ISS133	PROT
D316	ISS133	PROT
D317	ISS133	PROT
D318	ISS133	PROT
D319	ISS133	PROT
D320	ISS133	PROT
D331	ISS133	SECAM SW
D332	ISS133	SECAM SW
D333	ISS133	SECAM SW
D350	MTZJ5.6C	PROT

# B BOARD \* MARK

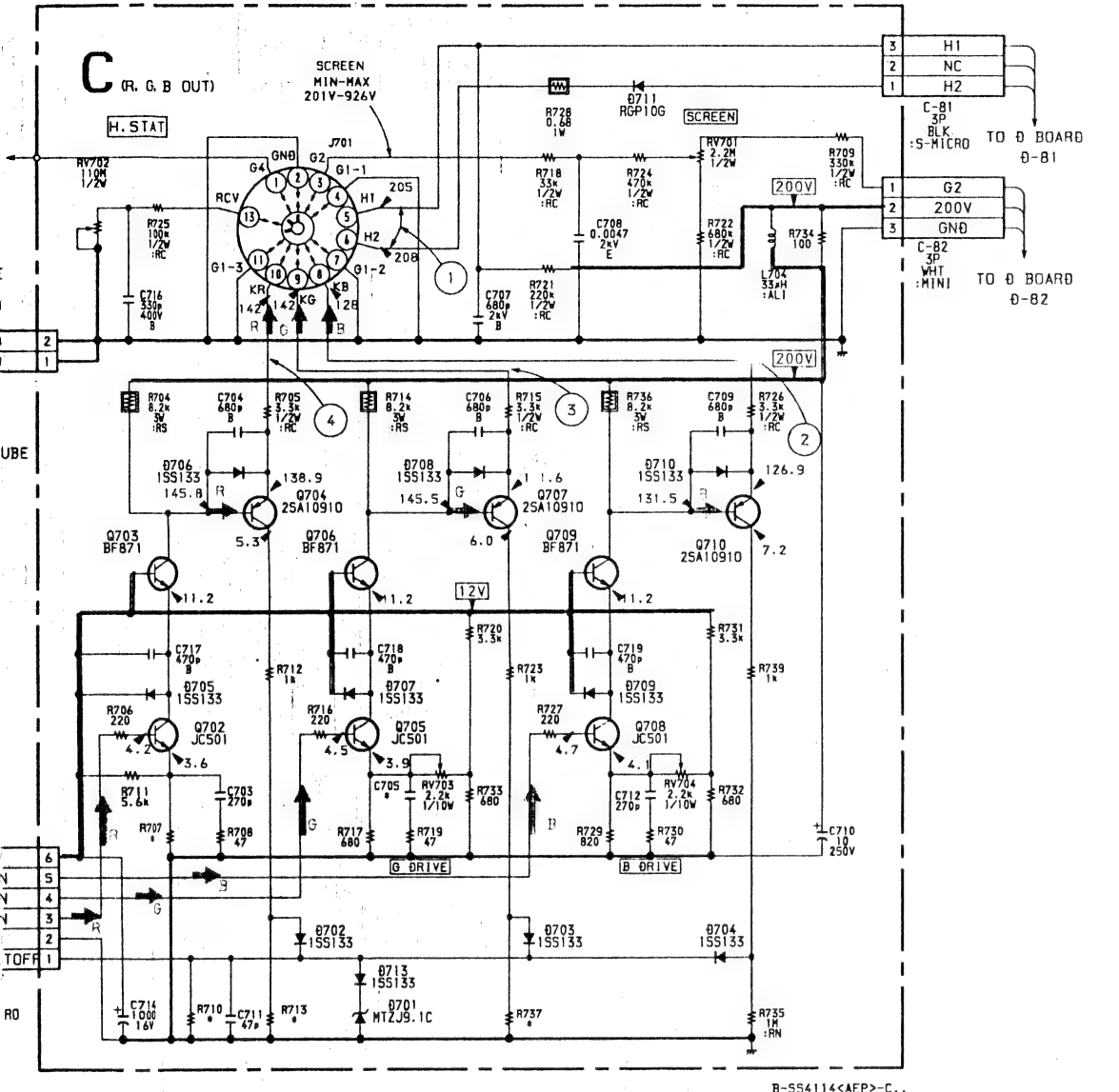
	21"	25"	29"
B-73	-	-	3P
C321	100P	100P	-
C386	-	-	4.7 50V
C1311	56P	56P	33P
IC1301	-	-	HIC2110
JR387	-	-	0: CHIP
JR390	0: CHIP	0: CHIP	-
L303	56 μH	56 μH	-
Q301	2SC2412K	2SC2412K	-
Q1305	-	-	2SC2412K
R306	-	-	0: CHIP
R349	680	680	-
R350	680	680	-
R351	220	680	-
R357	-	-	220
R377	330	330	1.8K
R382	270K	220K	220K
R386	-	-	3.3K
R390	220	220	100
R1302	-	-	47K
R1303	-	-	47K
R1304	-	-	100K
R1308	0	0	4.7K

- : NOT MOUNTED

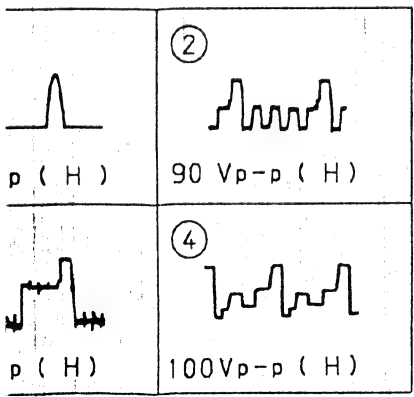








IRMS C BOARD



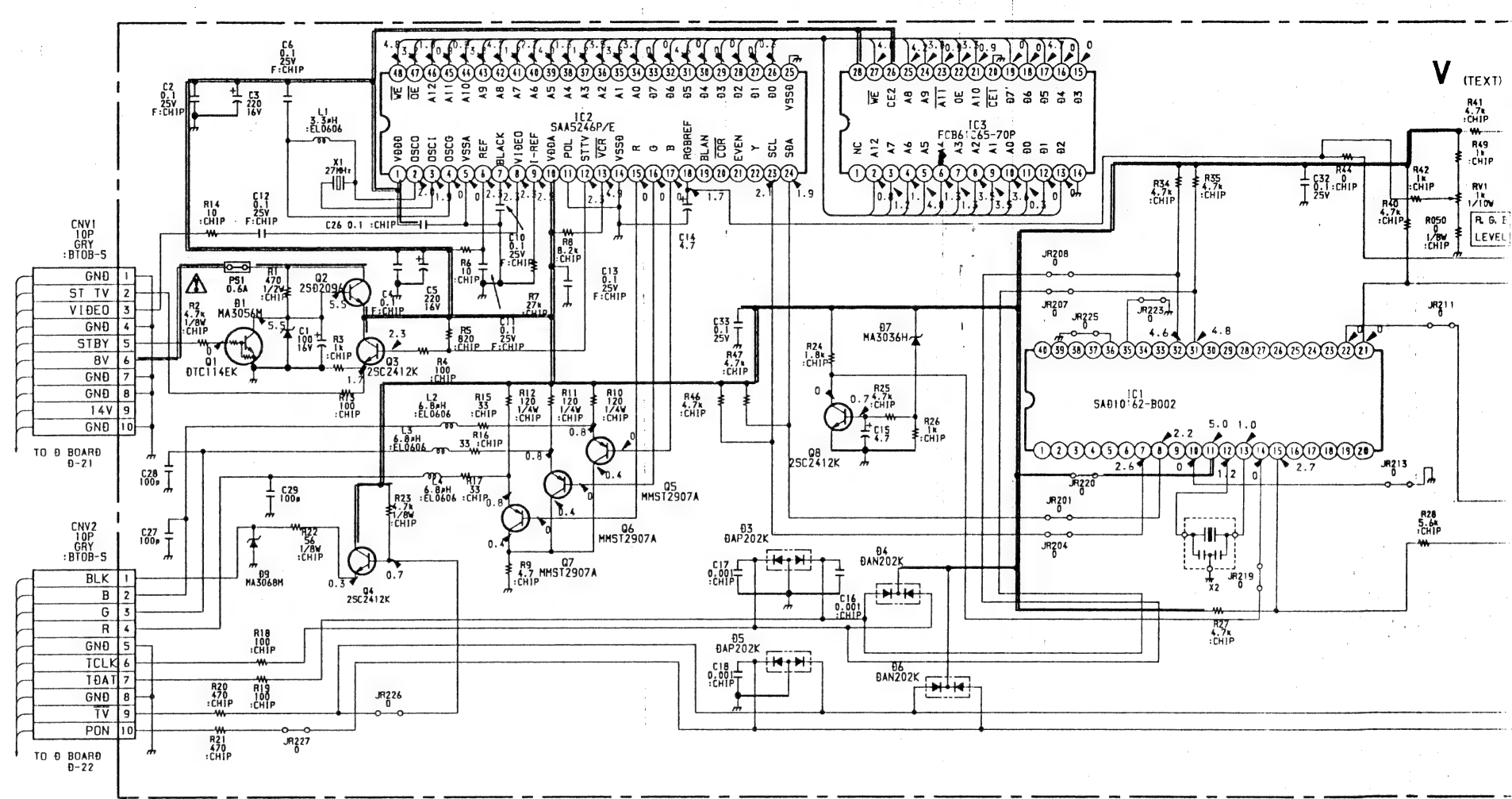
. C BOARD

Q702	JC501	R DRIVE
Q703	BF871	R OUT
Q704	2SA10910	ACO MEASURING
Q705	JC501	G DRIVE
Q706	BF871	G OUT
Q707	2SA10910	ACO MEASURING
Q708	JC501	B DRIVE
Q709	BF871	B OUT
Q710	2SA10910	ACO MEASURING
D701	MTZJ9.1C	PROTECT
D702	1SS133	PROTECT
D703	1SS133	PROTECT
D704	1SS133	PROTECT
D705	1SS133	PROTECT
D706	1SS133	PROTECT
D707	1SS133	PROTECT
D708	1SS133	PROTECT
D709	1SS133	PROTECT
D710	1SS133	PROTECT
D711	RGP10G	HEATING VOLTAGE REC
D713	1SS133	PROTECT

C BOARD \* MARK

	21"	25"	29"
C705	180P	220P	220P
R707	430	390	390
R710	100K	68K	68K
R713	160K	120K	120K
R737	390K	820K	470K

- : NOT MOUNTED



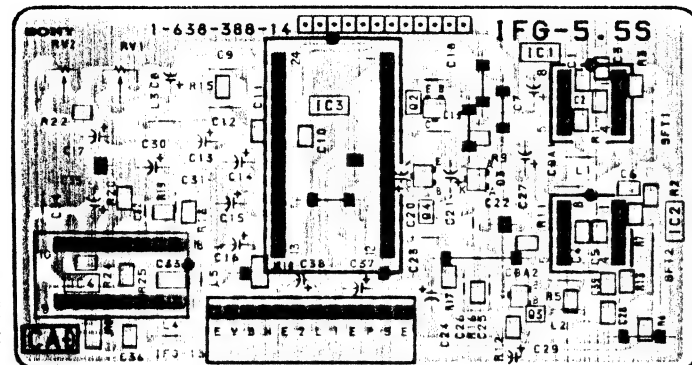
. V BOARD

IC1	SDA20162-B002	MICRO-CONT
IC2	SAA5246P/E	IVT
IC3	FCB61C65-70P	STATIC-RAM
Q1	DTC114EK	STAD BY
Q2	2SD2096	5V REG
Q3	2SC2412K	SYNC BUFFER
Q4	2SC2412K	BLK OUT
Q5	MMST2907A	B OUT
Q6	MMST2907A	G OUT
Q7	MMST2907A	R OUT
Q8	2SC2412K	RESET
D1	MA3056M	5V REG
D3	DAP202K	PROTEC
D4	DAN202K	PROTEC
D5	DAP202K	PROTEC
D6	DAN202K	PROTEC
D7	MA3036H	PROTEC
D9	MA3068M	PROTEC

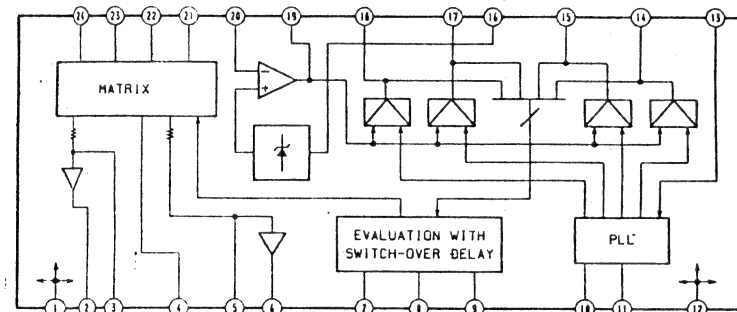




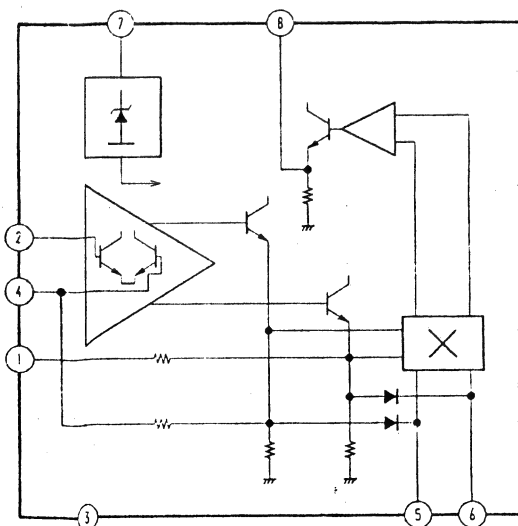
-IFG-5.5S Board-



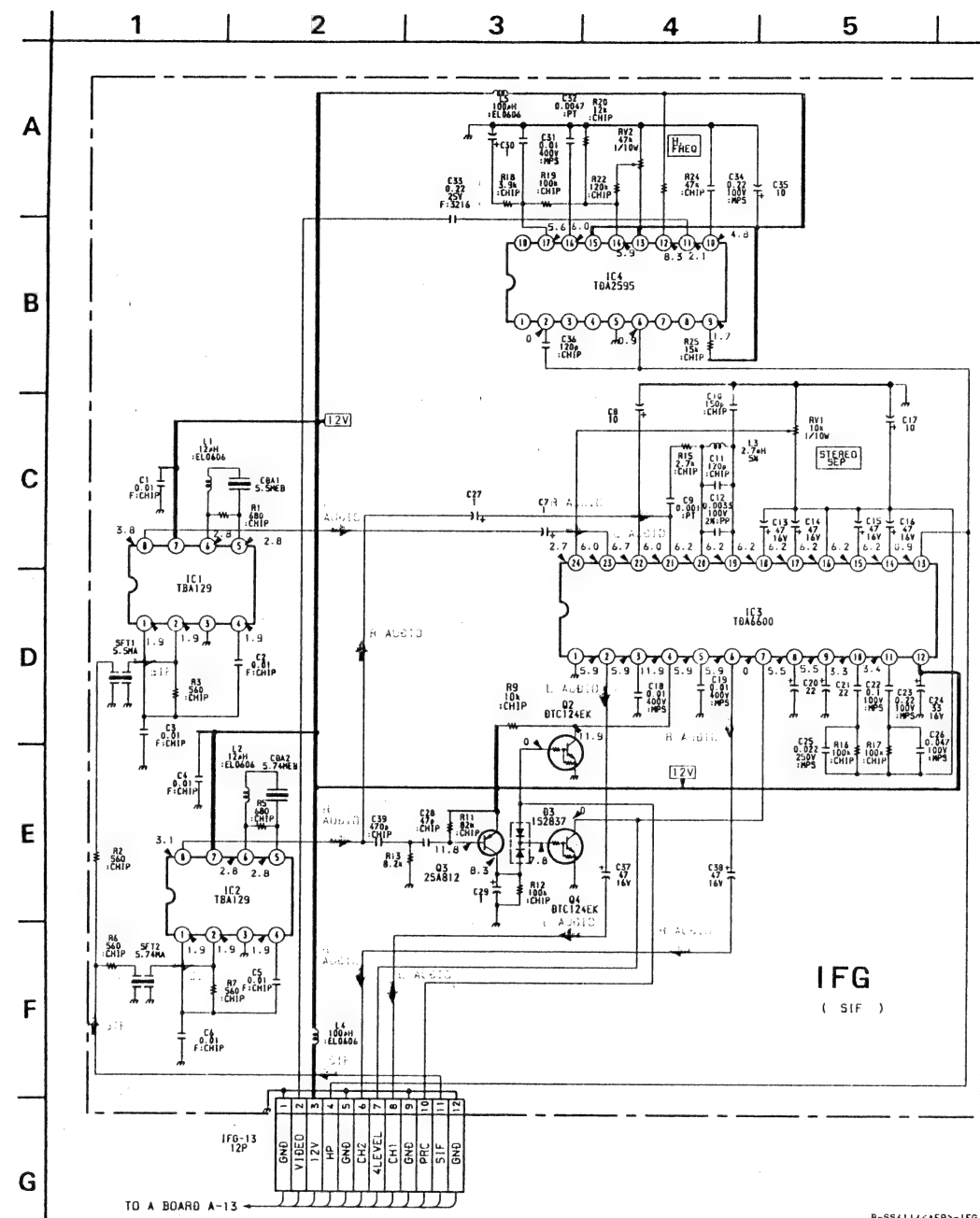
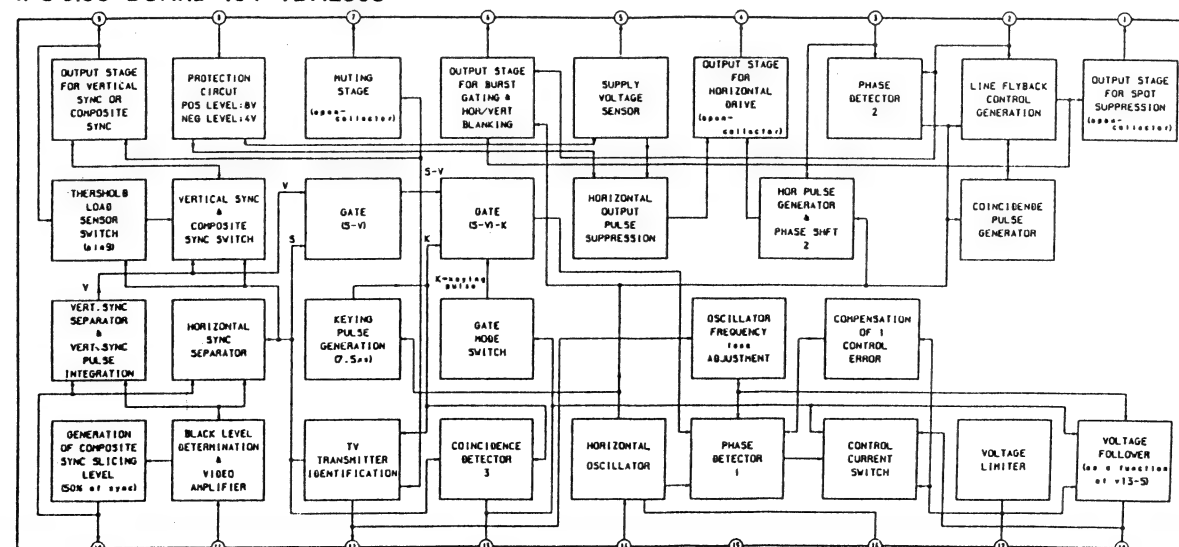
IFG-5.5S BOARD IC3 TDA6600



IFG-5.5S BOARD IC1/2 TBA129



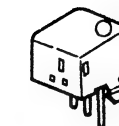
IFG-5.5S BOARD IC4 TDA2595



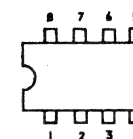
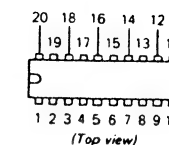
5-4. SEMICONDUCTORS

BA4558  
NE5532P  
RC4558P  
SDA2546  
TBA129  
TDA1543  
TEA2014A  
TEA2031A

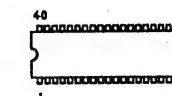
SBX1610-11



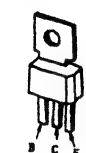
TDA8732



SDA20560-A012

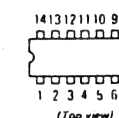


BF871



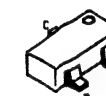
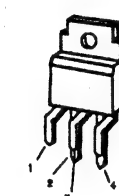
CXA1114P  
CXK5864BP-10L  
FCB61C65-70P  
MAB8461P-W208  
SAA7280P/M3  
TC5565APL-15L  
TDA4580-V7  
TDA4650-V4  
TDA6200  
TEA2028B

SN74LS02N



DTA144EK  
DTC114EK  
DTC124EK  
DTC144EK  
2SA1162-G  
2SB1295-UL6  
2SC1623-L5L6

TDA2050

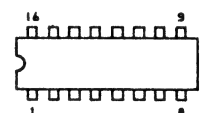
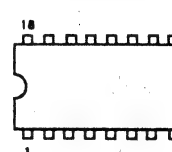


HD14053BFP  
MC14051BCP  
PCF8574  
TDA4660V2  
TDA8442-N3  
TEA2260  
PD4053BC

DTC144ES



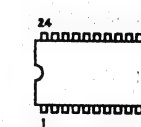
TDA2595-V9



LM7812CT  
TEA7605



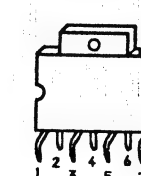
TDA6600-2



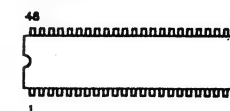
2SA1091-0  
2SD789-34



TDA8170



SAA5246P/E/M4A  
SAA5246P/E  
SAA5246P/H

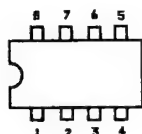


2SA1220A-P  
2SC2588-LK



# 5-4. SEMICONDUCTORS

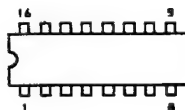
BA4558  
NE5532P  
RC4558P  
SDA2546  
TBA129  
TDA1543  
TEA2014A  
TEA2031A



CXA1114P  
CXK5864BP-10L  
FCB61C65-70P  
MAB8461P-W208  
SAA7280P/M3  
TC5565APL-15L  
TDA4580-V7  
TDA4650-V4  
TDA6200  
TEA2028B



HD14053BFP  
MC14051BCP  
PCF8574  
TDA4660V2  
TDA8442-N3  
TEA2260  
μ PD4053BC



LM7812CT  
TEA7605



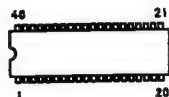
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SAA5246P/E  
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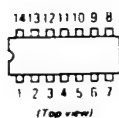
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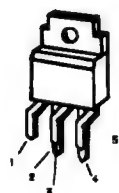
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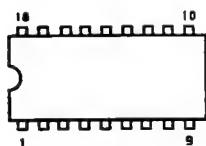
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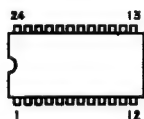
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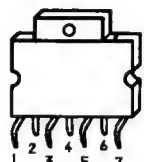
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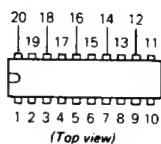
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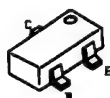
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BF871



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DTC124EK  
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DTC144ES



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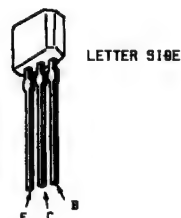
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2SC2785-HFE



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2SD2096-EF



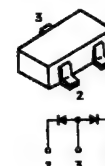
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HZS11NB3TD  
RU-3AM



CTU-12S



DAP202K



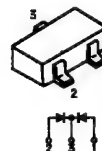
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MA152WK

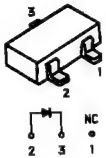


MTZJ-13B  
MTZJ-15A  
MTZJ-3.9B  
MTZJ-33A  
MTZJ-36D  
MTZN-10C  
RD11ES-B3  
RD5.6ESB2  
RD6.2ES-B2  
RD6.8ESB2  
RD7.5ESB2  
RD9.1ESB3  
UZ-4.7BSC  
1SS119

LD-201VR



RD3.6M-B2  
RD5.6M-B2  
RD6.8M-B2



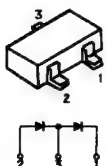
RGP02-17



U05G



1SS226





## 6-1. CHASSIS (KV-C2160B/C2161B)

● : BVTP 3 × 12 7-685-648-79

■ : BVTP 4 × 16 7-685-663-79

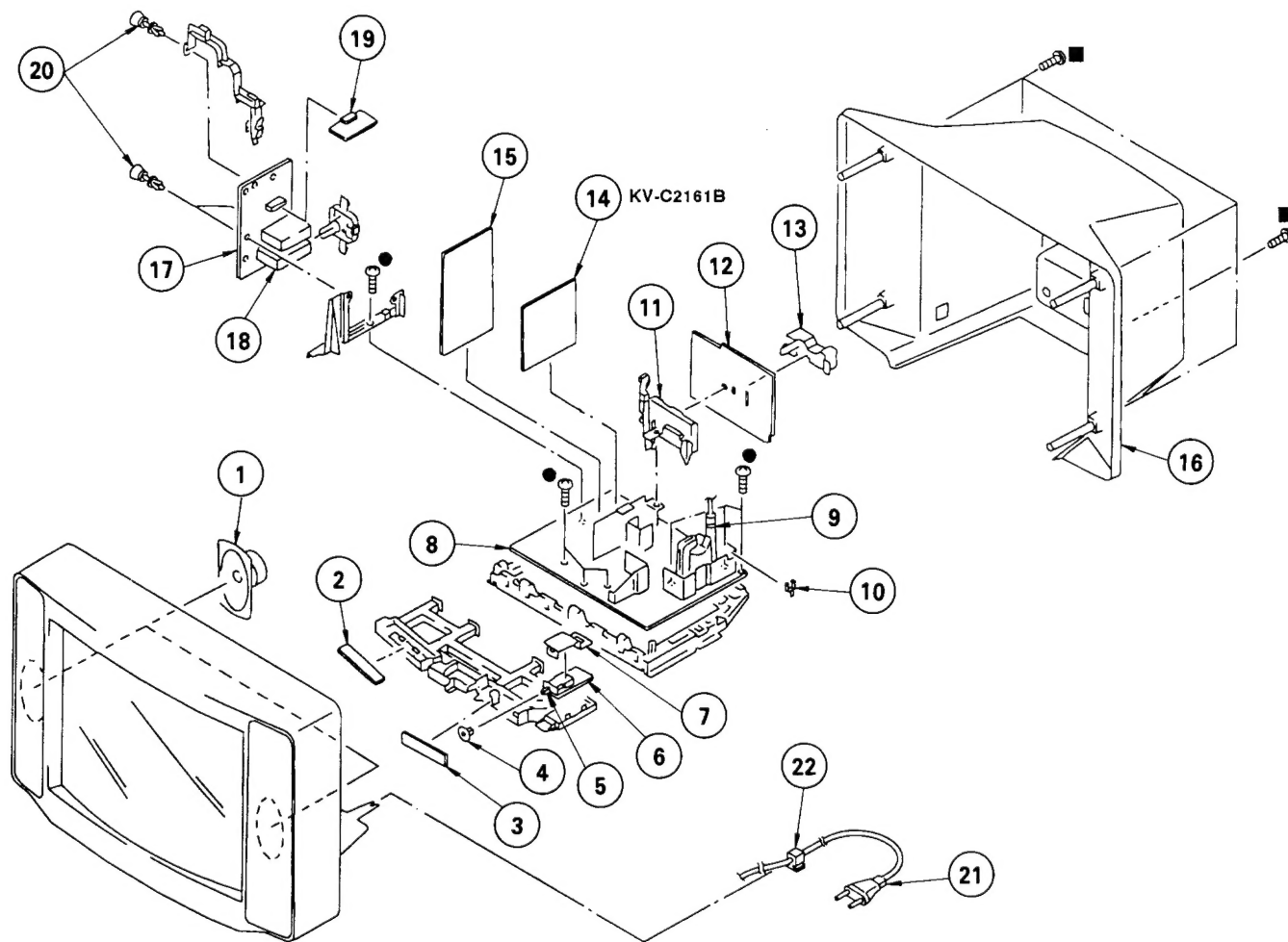
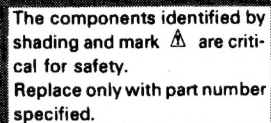



Diagram showing the exploded view of the handle assembly components, labeled 69 through 73:

- 69: A coiled cable with a hook and a connector.
- 70: A small circular disc or washer.
- 71: A small cylindrical component, likely a pin or bush.
- 72: A long, flat rectangular plate or bracket.
- 73: A long, thin, serrated metal strip or blade.

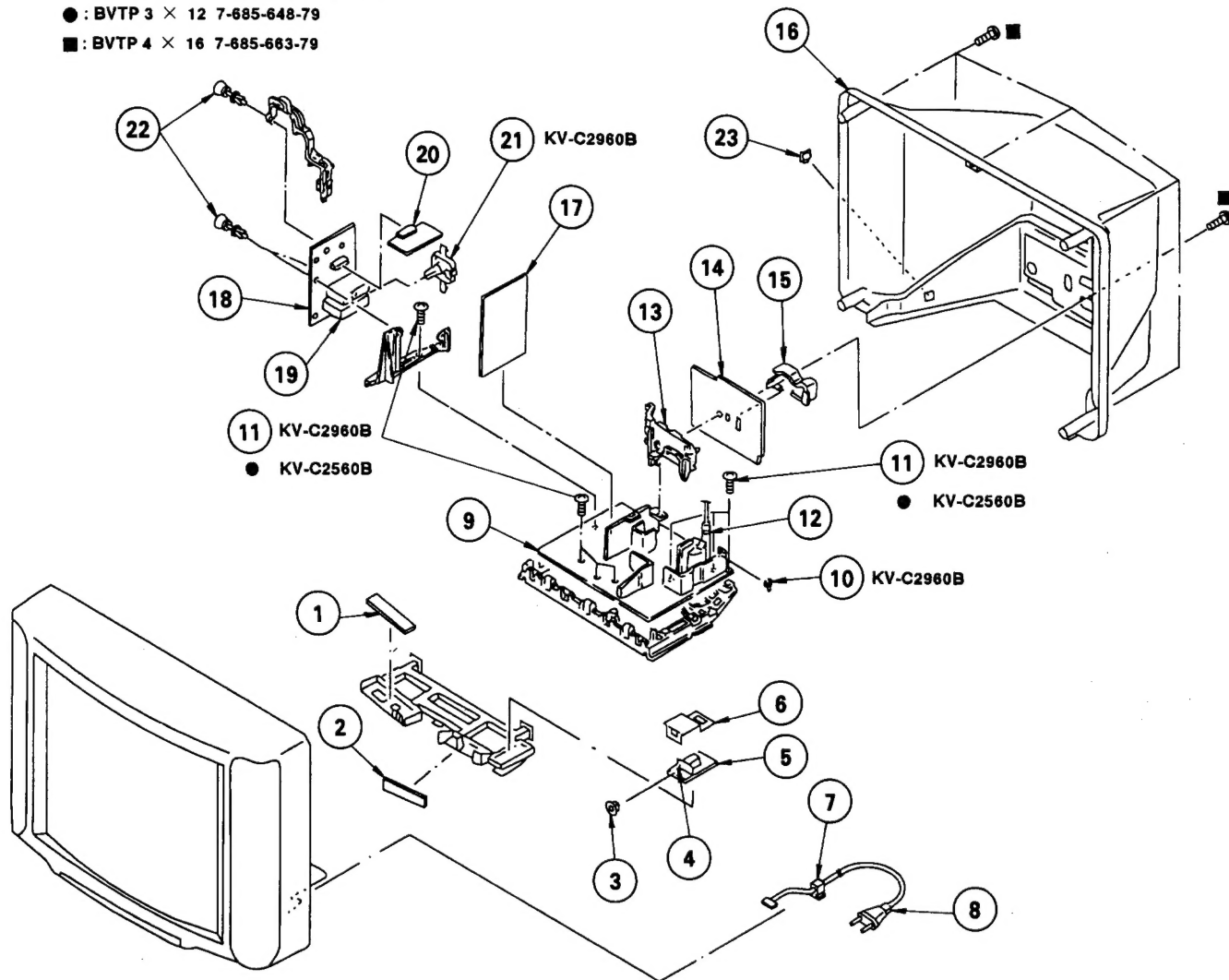



Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


### 6-3. CHASSIS (KV-C2560B/C2960B)

● : BVTP 3 × 12 7-685-648-79

■ : BVTP 4 × 16 7-685-663-79

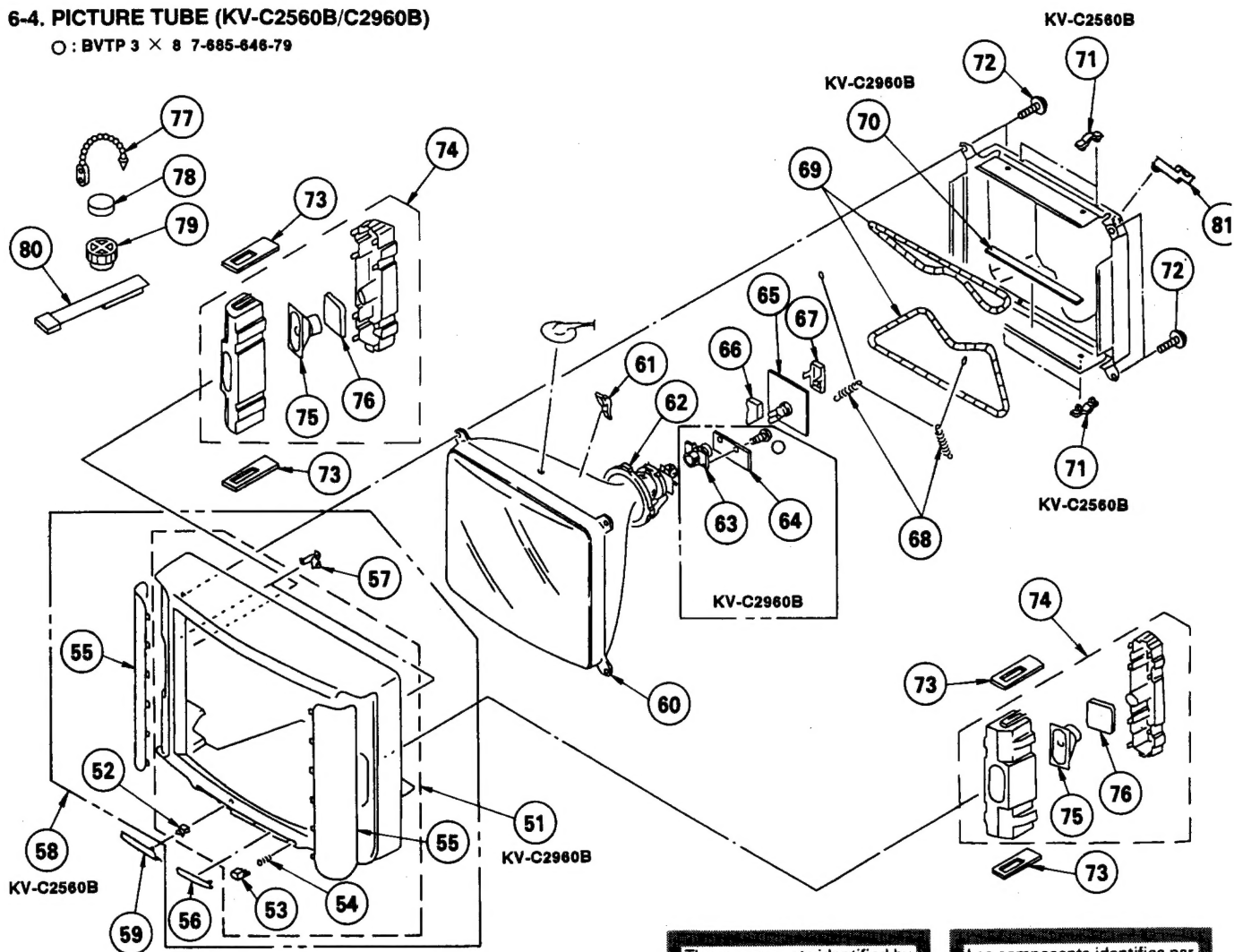



Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


The components identified by shading and mark  are critical for safety. Replace only with part number specified.

# 6-4. PICTURE TUBE (KV-C2560B/C2960B)

○ : BVTP 3 × 8 7-885-846-79



The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.